```
-------------------------------------------------------------------------------
      name:  <unnamed>
       log:  E:\KURSER\PostReg\Version6\Exercises\Day4\RegDayEx4.log
  log type:  text
 opened on:   5 Oct 2009, 10:33:18

. use obese.dta,clear

. set scheme lean1

.  codebook,comp

Variable    Obs Unique      Mean   Min   Max  Label
-------------------------------------------------------------------------------
sex        4690      2  1.563539     1     2  Sex
sbp        4690    116  132.7586    80   270  Systolic Blood Pressure
dbp        4690     69  82.53028    40   148  Diastolic Blood Pressure
scl        4658    248  228.2913   115   568  Serum Cholesterol
age        4690     37  46.03006    30    66  Age in Years
bmi        4690    248  25.63171  16.2  57.6  Body Mass Index
id         4690   4690  2349.172     1  4699
obese      4690      2   .128145     0     1
-------------------------------------------------------------------------------

. generate age50=age-50

. generate bmi25=bmi-25

. generate sbphigh=(sbp>140) if sbp<.

. label var sbphigh "SBP >140"

.
. ******************************************************************
. xi:logit sbphigh i.sex*age50 bmi25
i.sex             _Isex_1-2           (naturally coded; _Isex_1 omitted)
i.sex*age50       _IsexXage50_#       (coded as above)

Iteration 0:   log likelihood = -2783.5914
Iteration 1:   log likelihood = -2383.5961
Iteration 2:   log likelihood = -2367.4441
Iteration 3:   log likelihood = -2367.4154
Iteration 4:   log likelihood = -2367.4154

Logistic regression                               Number of obs   =       4690
                                                  LR chi2(4)      =     832.35
                                                  Prob > chi2     =     0.0000
Log likelihood = -2367.4154                       Pseudo R2       =     0.1495

------------------------------------------------------------------------------
     sbphigh |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     _Isex_2 |    .383222   .0736284     5.20   0.000     .2389129     .527531
       age50 |   .0555582   .0062843     8.84   0.000     .0432411    .0678752
_IsexXage5~2 |   .0650037   .0089538     7.26   0.000     .0474545    .0825529
       bmi25 |   .1183799   .0091055    13.00   0.000     .1005333    .1362264
       _cons |  -1.063202   .0565711   -18.79   0.000    -1.174079   -.9523243
------------------------------------------------------------------------------

. logit,or

Logistic regression                               Number of obs   =       4690
                                                  LR chi2(4)      =     832.35
                                                  Prob > chi2     =     0.0000
Log likelihood = -2367.4154                       Pseudo R2       =     0.1495

------------------------------------------------------------------------------
     sbphigh | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     _Isex_2 |   1.467004   .1080132     5.20   0.000     1.269868    1.694743
       age50 |    1.05713   .0066434     8.84   0.000      1.04419    1.070232
_IsexXage5~2 |   1.067163   .0095552     7.26   0.000     1.048599    1.086056
       bmi25 |   1.125672   .0102499    13.00   0.000      1.10576    1.145941
------------------------------------------------------------------------------

. ******************************************************************
. makeeq
0 + 0.3832*_Isex_2 + 0.0556*age50 + 0.0650*_IsexXage50_2 + 0.1184*bmi25 + -1.063
> 2*_cons
--------
0 + #c_Isex_2*_Isex_2 + #cage50*age50 + #c_IsexXage50_2*_IsexXage50_2 + #cbmi25*
> bmi25 + #c_cons*_cons

. ******************************************************************
. twoway ///
> (function  y=$c_Isex_2*1 + $cage50*(x-50) + $c_IsexXage50_2*1*(x-50) + $cbmi25
```

```
> *(25-25) + $c_cons ///
>                   ,range(age)  lco(red) lpa(1)) ///
> (function  y=$c_Isex_2*0 + $cage50*(x-50) + $c_IsexXage50_2*0*(x-50) + $cbmi25
> *(25-25) + $c_cons  ///
>                   ,range(age)  lco(blue) lpa(1) ) ///
> (function  y=$c_Isex_2*1 + $cage50*(x-50) + $c_IsexXage50_2*1*(x-50) + $cbmi25
> *(30-25) + $c_cons  ///
>                   ,range(age)  lco(red) lpa(dash) ) ///
> (function  y=$c_Isex_2*0 + $cage50*(x-50) + $c_IsexXage50_2*0*(x-50) + $cbmi25
> *(30-25) + $c_cons  ///
>                   ,range(age)  lco(blue)lpa(dash)) ///
> ,xtit("Age") ytit("log odds highSBP")  name(p1,replace) xline(50) yline( -1.06
> 3202) ///
> legend(   label(1 "women bmi=25")label(2 "man bmi=25") label(3 "women bmi=30")
> label(4 "man bmi=30")   )

. graph export RegDayEx4_01.wmf,replace
(file E:\KURSER\PostReg\Version6\Exercises\Day4\RegDayEx4_01.wmf written in Wind
> ows Metafile format)

.
. generate fit1=invlogit($c_Isex_2*1 + $cage50*(age-50) + $c_IsexXage50_2*1*(age
> -50) + $cbmi25*(25-25) + $c_cons )

. label var fit1 " bmi+sex*age woman bmi=25"

. generate fit2=invlogit($c_Isex_2*0 + $cage50*(age-50) + $c_IsexXage50_2*0*(age
> -50) + $cbmi25*(25-25) + $c_cons )

. label var fit2 " bmi+sex*age   man bmi=25"

. generate fit3=invlogit($c_Isex_2*1 + $cage50*(age-50) + $c_IsexXage50_2*1*(age
> -50) + $cbmi25*(30-25) + $c_cons )

. label var fit3 " bmi+sex*age woman bmi=30"

. generate fit4=invlogit($c_Isex_2*0 + $cage50*(age-50) + $c_IsexXage50_2*0*(age
> -50) + $cbmi25*(30-25) + $c_cons )

. label var fit4 " bmi+sex*age   man bmi=30"

.
.
. line fit? age,sort lco(red blue red blue red) lpa( 1 1 dash dash) ///
> ,xtit("Age") ytit("prev high SBP")  name(p2,replace) legend(pos(6) )

. graph export RegDayEx4_02.wmf,replace
(file E:\KURSER\PostReg\Version6\Exercises\Day4\RegDayEx4_02.wmf written in Wind
> ows Metafile format)

.
. * kvinde vs mand 50år
. lincom _Isex_2 ,or

 ( 1)  [sbphigh]_Isex_2 = 0

------------------------------------------------------------------------------
     sbphigh | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   1.467004   .1080132     5.20   0.000     1.269868    1.694743
------------------------------------------------------------------------------

. * kvinde vs mand 40år
. lincom _Isex_2 -_IsexXage50_2*10,or

 ( 1)  [sbphigh]_Isex_2 - 10*[sbphigh]_IsexXage50_2 = 0

------------------------------------------------------------------------------
     sbphigh | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .7658147   .0800707    -2.55   0.011     .6239147    .9399876
------------------------------------------------------------------------------

. * kvinde vs mand 60år
. lincom _Isex_2 +_IsexXage50_2*10,or

 ( 1)  [sbphigh]_Isex_2 + 10*[sbphigh]_IsexXage50_2 = 0

------------------------------------------------------------------------------
     sbphigh | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   2.810209   .3548491     8.18   0.000     2.194099    3.599325
------------------------------------------------------------------------------

.
. * mand vs kvinde 50år
```

```
. lincom -_Isex_2 ,or

 ( 1)  - [sbphigh]_Isex_2 = 0

------------------------------------------------------------------------------
     sbphigh | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .6816616   .0501897    -5.20   0.000       .59006    .7874835
------------------------------------------------------------------------------

. * mand vs kvinde 40år
. lincom -_Isex_2 +_IsexXage50_2*10,or

 ( 1)  - [sbphigh]_Isex_2 + 10*[sbphigh]_IsexXage50_2 = 0

------------------------------------------------------------------------------
     sbphigh | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   1.305799   .1365295     2.55   0.011     1.063844    1.602783
------------------------------------------------------------------------------

. * mand vs kvinde 60år
. lincom -_Isex_2 -_IsexXage50_2*10,or

 ( 1)  - [sbphigh]_Isex_2 - 10*[sbphigh]_IsexXage50_2 = 0

------------------------------------------------------------------------------
     sbphigh | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .3558454   .0449331    -8.18   0.000     .2778298    .4557679
------------------------------------------------------------------------------

.
. * risk for 40 årig mand bmi=27
. lincom _cons-age50*10+bmi25*2

 ( 1)  - 10*[sbphigh]age50 + 2*[sbphigh]bmi25 + [sbphigh]_cons = 0

------------------------------------------------------------------------------
     sbphigh |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -1.382023   .0713909   -19.36   0.000    -1.521947     -1.2421
------------------------------------------------------------------------------

. di invlogit(r(estimate))
.20068422

. di invlogit(r(estimate)-1.96*r(se))
.17917461

. di invlogit(r(estimate)+1.96*r(se))
.22407114

.
. estrisk _cons-age50*10+bmi25*2
 Estimated probability   for :  _cons-age50*10+bmi25*2
  risk 0.2007 (0.1792; 0.2241)

.
. generate fit5=invlogit($c_Isex_2*1 + $cage50*(40-50) + $c_IsexXage50_2*1*(40-5
> 0) + $cbmi25*(bmi-25) + $c_cons)

. label var fit5 " bmi+sex*age woman 40 year"

.
. generate fit6=invlogit($c_Isex_2*0 + $cage50*(40-50) + $c_IsexXage50_2*0*(40-5
> 0) + $cbmi25*(bmi-25) + $c_cons )

. label var fit6 " bmi+sex*age man 40 year"

.
. sort bmi

. line fit5 fit6 bmi,sort lco(red blue ) ///
> , ytit("prev high SBP")  name(p3,replace) legend(pos(12)) ///
>   xline(27) yline(0.200)

. graph export RegDayEx4_03.wmf,replace
(file E:\KURSER\PostReg\Version6\Exercises\Day4\RegDayEx4_03.wmf written in Wind
> ows Metafile format)

. ********************************************************************
. *   cheking BMI
. ********************************************************************
. * bmi in five groups
. xtile bmigrp5=bmi,n(5)
```

```
. table bmigrp5,c(count bmi min bmi max bmi)

-----------------------------------------------
5          |
quantiles |
of bmi     |     N(bmi)    min(bmi)    max(bmi)
----------+------------------------------------
        1 |        980        16.2        22.3
        2 |        951        22.4        24.3
        3 |        909        24.4        26.2
        4 |        916        26.3        28.6
        5 |        934        28.7        57.6
-----------------------------------------------

. xi:logit sbphigh i.sex*age50 bmi25 i.bmigrp5
i.sex             _Isex_1-2           (naturally coded; _Isex_1 omitted)
i.sex*age50       _IsexXage50_#       (coded as above)
i.bmigrp5         _Ibmigrp5_1-5       (naturally coded; _Ibmigrp5_1 omitted)

Iteration 0:   log likelihood = -2783.5914
Iteration 1:   log likelihood = -2383.0139
Iteration 2:   log likelihood = -2366.1937
Iteration 3:   log likelihood = -2366.1592
Iteration 4:   log likelihood = -2366.1592

Logistic regression                               Number of obs   =       4690
                                                  LR chi2(8)      =     834.86
                                                  Prob > chi2     =     0.0000
Log likelihood = -2366.1592                       Pseudo R2       =     0.1500

------------------------------------------------------------------------------
     sbphigh |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     _Isex_2 |   .3919523   .0747061     5.25   0.000      .245531    .5383736
       age50 |   .0554235   .0062931     8.81   0.000     .0430893    .0677577
_IsexXage5~2 |    .064575   .0089658     7.20   0.000     .0470024    .0821476
       bmi25 |   .1003762   .0221644     4.53   0.000     .0569347    .1438176
 _Ibmigrp5_2 |   .0475754   .1415213     0.34   0.737    -.2298012    .3249519
 _Ibmigrp5_3 |   .2069594    .160403     1.29   0.197    -.1074248    .5213435
 _Ibmigrp5_4 |    .124628   .1937189     0.64   0.520     -.255054    .5043101
 _Ibmigrp5_5 |   .2517354   .2682513     0.94   0.348    -.2740274    .7774982
       _cons |  -1.185664   .1462942    -8.10   0.000    -1.472395   -.8989323
------------------------------------------------------------------------------

. testparm _Ibmi*

 ( 1)  [sbphigh]_Ibmigrp5_2 = 0
 ( 2)  [sbphigh]_Ibmigrp5_3 = 0
 ( 3)  [sbphigh]_Ibmigrp5_4 = 0
 ( 4)  [sbphigh]_Ibmigrp5_5 = 0

           chi2(  4) =    2.53
         Prob > chi2 =    0.6399

.
. xi:logit sbphigh i.sex*age50 i.bmigrp5
i.sex             _Isex_1-2           (naturally coded; _Isex_1 omitted)
i.sex*age50       _IsexXage50_#       (coded as above)
i.bmigrp5         _Ibmigrp5_1-5       (naturally coded; _Ibmigrp5_1 omitted)

Iteration 0:   log likelihood = -2783.5914
Iteration 1:   log likelihood = -2393.3629
Iteration 2:   log likelihood = -2377.0983
Iteration 3:   log likelihood =  -2377.062
Iteration 4:   log likelihood =  -2377.062

Logistic regression                               Number of obs   =       4690
                                                  LR chi2(7)      =     813.06
                                                  Prob > chi2     =     0.0000
Log likelihood =  -2377.062                       Pseudo R2       =     0.1460

------------------------------------------------------------------------------
     sbphigh |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     _Isex_2 |   .4233427   .0743438     5.69   0.000     .2776315     .569054
       age50 |   .0554806   .0063017     8.80   0.000     .0431295    .0678317
_IsexXage5~2 |   .0643688   .0089453     7.20   0.000     .0468364    .0819012
 _Ibmigrp5_2 |   .3186386    .128665     2.48   0.013     .0664599    .5708173
 _Ibmigrp5_3 |   .6696881   .1244373     5.38   0.000     .4257954    .9135807
 _Ibmigrp5_4 |   .8046991   .1235027     6.52   0.000     .5626384     1.04676
 _Ibmigrp5_5 |   1.346088   .1202005    11.20   0.000       1.1105    1.581677
       _cons |  -1.634305   .1091405   -14.97   0.000    -1.848216   -1.420393
------------------------------------------------------------------------------

. logit,or
```

```
Logistic regression                               Number of obs   =       4690
                                                  LR chi2(7)      =     813.06
                                                  Prob > chi2     =     0.0000
Log likelihood =  -2377.062                       Pseudo R2       =     0.1460

------------------------------------------------------------------------------
     sbphigh | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     _Isex_2 |   1.527058   .1135273     5.69   0.000         1.32    1.766595
       age50 |   1.057049   .0066612     8.80   0.000     1.044073    1.070185
_IsexXage5~2 |   1.066486     .00954     7.20   0.000     1.047951    1.085349
 _Ibmigrp5_2 |   1.375254   .1769471     2.48   0.013     1.068718    1.769713
 _Ibmigrp5_3 |   1.953628   .2431042     5.38   0.000     1.530807    2.493234
 _Ibmigrp5_4 |   2.236024   .2761549     6.52   0.000     1.755298    2.848407
 _Ibmigrp5_5 |   3.842366   .4618542    11.20   0.000     3.035875    4.863104
------------------------------------------------------------------------------

.
. makeeq
0 + 0.4233*_Isex_2 + 0.0555*age50 + 0.0644*_IsexXage50_2 + 0.3186*_Ibmigrp5_2 +
> 0.6697*_Ibmigrp5_3 + 0.8047*_Ibmigrp5_4 + 1.3461*_Ibmigrp5_5 + -1.6343*_cons
--------
0 + #c_Isex_2*_Isex_2 + #cage50*age50 + #c_IsexXage50_2*_IsexXage50_2 + #c_Ibmig
> rp5_2*_Ibmigrp5_2 + #c_Ibmigrp5_3*_Ibmigrp5_3 + #c_Ibmigrp5_4*_Ibmigrp5_4 + #c
> _Ibmigrp5_5*_Ibmigrp5_5 + #c_cons*_cons

.
. generate fit7=invlogit($cage50*(-10)  + $c_Ibmigrp5_2*_Ibmigrp5_2 + $c_Ibmigrp
> 5_3*_Ibmigrp5_3 + ///
>                       $c_Ibmigrp5_4*_Ibmigrp5_4 + $c_Ibmigrp5_5*_Ibmigrp5_5 +
>  $c_cons)

. label var fit7 " bmigrp5+sex*age man 40 year"

.
. ************************************************************************
. * BMI spline
. mkspline bmisp5=bmi, cubic nk(5) disp

             |     knot1      knot2      knot3      knot4      knot5
-------------+-------------------------------------------------------
         bmi |      19.8         23       25.2       27.7       32.8

. drop bmisp51

. xi:logit sbphigh i.sex*age50 bmi bmisp5?
i.sex             _Isex_1-2           (naturally coded; _Isex_1 omitted)
i.sex*age50       _IsexXage50_#       (coded as above)

Iteration 0:   log likelihood = -2783.5914
Iteration 1:   log likelihood = -2384.1569
Iteration 2:   log likelihood = -2366.7488
Iteration 3:   log likelihood = -2366.6913
Iteration 4:   log likelihood = -2366.6913

Logistic regression                               Number of obs   =       4690
                                                  LR chi2(7)      =     833.80
                                                  Prob > chi2     =     0.0000
Log likelihood = -2366.6913                       Pseudo R2       =     0.1498

------------------------------------------------------------------------------
     sbphigh |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     _Isex_2 |   .3965664   .0748788     5.30   0.000     .2498066    .5433262
       age50 |   .0554185   .0062916     8.81   0.000     .0430873    .0677497
_IsexXage5~2 |   .0646918   .0089622     7.22   0.000     .0471262    .0822574
         bmi |   .1588197   .0700915     2.27   0.023      .021443    .2961965
     bmisp52 |  -.0839686   .4573217    -0.18   0.854    -.9803026    .8123654
     bmisp53 |   .0815429   1.765307     0.05   0.963    -3.378395     3.54148
     bmisp54 |   .0980129   2.101623     0.05   0.963    -4.021092    4.217117
       _cons |  -4.940836   1.486073    -3.32   0.001    -7.853486   -2.028187
------------------------------------------------------------------------------

. testparm bmisp*

 ( 1)  [sbphigh]bmisp52 = 0
 ( 2)  [sbphigh]bmisp53 = 0
 ( 3)  [sbphigh]bmisp54 = 0

           chi2(  3) =    1.43
         Prob > chi2 =    0.6977

.
. makeeq
0 + 0.3966*_Isex_2 + 0.0554*age50 + 0.0647*_IsexXage50_2 + 0.1588*bmi + -0.0840*
```

```
> bmisp52 + 0.0815*bmisp53 + 0.0980*bmisp54 + -4.9408*_cons
--------
0 + #c_Isex_2*_Isex_2 + #cage50*age50 + #c_IsexXage50_2*_IsexXage50_2 + #cbmi*bm
> i + #cbmisp52*bmisp52 + #cbmisp53*bmisp53 + #cbmisp54*bmisp54 + #c_cons*_cons

. generate fit8=invlogit( $cage50*(-10) + $cbmi*bmi + $cbmisp52*bmisp52 + $cbmis
> p53*bmisp53 ///
>                          +$cbmisp54*bmisp54 + $c_cons )
>

. label var fit8 " bmisp5+sex*age man 40 year"

.
. line fit8 fit7 fit6 bmi,sort lco(red blue )legend(pos(12)) ///
> , ytit("prev high SBP")  name(p4,replace)

. graph export RegDayEx4_04.wmf,replace
(file E:\KURSER\PostReg\Version6\Exercises\Day4\RegDayEx4_04.wmf written in Wind
> ows Metafile format)

. ************************************************************************
. * BMI og sex
. xi:logit sbphigh i.sex*age50 i.sex*bmi
i.sex             _Isex_1-2           (naturally coded; _Isex_1 omitted)
i.sex*age50       _IsexXage50_#       (coded as above)
i.sex*bmi         _IsexXbmi_#         (coded as above)

note: _Isex_2 omitted because of collinearity
Iteration 0:   log likelihood = -2783.5914
Iteration 1:   log likelihood = -2383.4909
Iteration 2:   log likelihood =  -2367.169
Iteration 3:   log likelihood = -2367.1361
Iteration 4:   log likelihood = -2367.1361

Logistic regression                               Number of obs   =       4690
                                                  LR chi2(5)      =     832.91
                                                  Prob > chi2     =     0.0000
Log likelihood = -2367.1361                       Pseudo R2       =     0.1496

------------------------------------------------------------------------------
     sbphigh |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     _Isex_2 |   .0027631   .5138441     0.01   0.996    -1.004353    1.009879
       age50 |   .0553738   .0062724     8.83   0.000     .0430801    .0676675
_IsexXage5~2 |   .0651024   .0089518     7.27   0.000     .0475571    .0826477
     _Isex_2 |  (omitted)
         bmi |   .1088024    .015682     6.94   0.000     .0780662    .1395385
 _IsexXbmi_2 |   .0144193   .0192824     0.75   0.455    -.0233736    .0522122
       _cons |   -3.76902   .4186861    -9.00   0.000     -4.58963    -2.94841
------------------------------------------------------------------------------

. ************************************************************************
. * BMI og age
. xtile agegrp3=age,n(3)

. table agegrp3,c(count age min age max age)

----------------------------------------------
3         |
quantiles |
of age    |     N(age)    min(age)    max(age)
----------+-----------------------------------
        1 |      1,681          30          41
        2 |      1,471          42          50
        3 |      1,538          51          66
----------------------------------------------

. xi:logit sbphigh i.sex*age50 i.agegrp*bmi
i.sex             _Isex_1-2           (naturally coded; _Isex_1 omitted)
i.sex*age50       _IsexXage50_#       (coded as above)
i.agegrp3         _Iagegrp3_1-3       (naturally coded; _Iagegrp3_1 omitted)
i.agegrp3*bmi     _IageXbmi_#         (coded as above)

Iteration 0:   log likelihood = -2783.5914
Iteration 1:   log likelihood = -2385.6406
Iteration 2:   log likelihood = -2362.5692
Iteration 3:   log likelihood = -2362.2697
Iteration 4:   log likelihood = -2362.2695

Logistic regression                               Number of obs   =       4690
                                                  LR chi2(8)      =     842.64
                                                  Prob > chi2     =     0.0000
Log likelihood = -2362.2695                       Pseudo R2       =     0.1514

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

```
-------------+----------------------------------------------------------------
     _Isex_2 |   .3797384    .073379     5.18   0.000     .2359182    .5235585
       age50 |    .036185   .0126161     2.87   0.004      .011458    .0609121
_IsexXage5~2 |   .0645828   .0090943     7.10   0.000     .0467583    .0824074
 _Iagegrp3_2 |   1.534344   .6500713     2.36   0.018     .2602277     2.80846
 _Iagegrp3_3 |   1.847299   .6574888     2.81   0.005      .558645    3.135954
         bmi |   .1554336   .0180665     8.60   0.000     .1200238    .1908433
 _IageXbmi_2 |  -.0464773    .023925    -1.94   0.052    -.0933695    .0004149
 _IageXbmi_3 |  -.0525833   .0228403    -2.30   0.021    -.0973495   -.0078171
       _cons |   -5.33548   .5158047   -10.34   0.000    -6.346438   -4.324521
------------------------------------------------------------------------------

. rename  _IageXbmi_2 abmi2

. rename  _IageXbmi_3 abmi3

. xi:logit sbphigh i.sex*age50 bmi abmi?
i.sex             _Isex_1-2           (naturally coded; _Isex_1 omitted)
i.sex*age50       _IsexXage50_#       (coded as above)

Iteration 0:   log likelihood = -2783.5914
Iteration 1:   log likelihood = -2384.7293
Iteration 2:   log likelihood = -2366.6858
Iteration 3:   log likelihood = -2366.6287
Iteration 4:   log likelihood = -2366.6287

Logistic regression                               Number of obs   =       4690
                                                  LR chi2(6)      =     833.93
                                                  Prob > chi2     =     0.0000
Log likelihood = -2366.6287                       Pseudo R2       =     0.1498

------------------------------------------------------------------------------
     sbphigh |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     _Isex_2 |   .3798008   .0736285     5.16   0.000     .2354915      .52411
       age50 |   .0469773   .0119269     3.94   0.000      .023601    .0703535
_IsexXage5~2 |   .0658159   .0090346     7.28   0.000     .0481085    .0835234
         bmi |   .1132875   .0103061    10.99   0.000     .0930879    .1334871
       abmi2 |   .0063235   .0051136     1.24   0.216     -.003699    .0163459
       abmi3 |    .007574   .0084298     0.90   0.369    -.0089481    .0240961
       _cons |  -4.042465   .2490951   -16.23   0.000    -4.530682   -3.554247
------------------------------------------------------------------------------

. testparm abmi?

 ( 1)  [sbphigh]abmi2 = 0
 ( 2)  [sbphigh]abmi3 = 0

           chi2(  2) =    1.57
         Prob > chi2 =    0.4560

.
. makeeq
0 + 0.3798*_Isex_2 + 0.0470*age50 + 0.0658*_IsexXage50_2 + 0.1133*bmi + 0.0063*a
> bmi2 + 0.0076*abmi3 + -4.0425*_cons
--------
0 + #c_Isex_2*_Isex_2 + #cage50*age50 + #c_IsexXage50_2*_IsexXage50_2 + #cbmi*bm
> i + #cabmi2*abmi2 + #cabmi3*abmi3 + #c_cons*_cons

. twoway ///
> (function y= $cbmi*x + $cabmi2*0 + $cabmi3*0 + $c_cons, range(bmi) lco(red)) /
> //
> (function y= $cbmi*x + $cabmi2*x + $cabmi3*0 + $c_cons, range(bmi) lco(blue ))
>  ///
> (function y= $cbmi*x + $cabmi2*0 + $cabmi3*x + $c_cons, range(bmi) lco(black))
>  ///
> , ytitle(log odds) name(p5,replace) title("sex*age+ age3*bmi") ///
> legend(ring(0) pos(11) label(1 "30-41") label(2 "42-50") label(3 "51-66"))

.
. graph export RegDayEx4_05.wmf,replace
(file E:\KURSER\PostReg\Version6\Exercises\Day4\RegDayEx4_05.wmf written in Wind
> ows Metafile format)

.
. log close
      name:  <unnamed>
       log:  E:\KURSER\PostReg\Version6\Exercises\Day4\RegDayEx4.log
  log type:  text
 closed on:   5 Oct 2009, 10:33:33
-------------------------------------------------------------------------------
```