

1. We analyze the factors influencing the decision to participate on labour market. We have following variables. The model estimated is reported below. AGE and AGE2 variables are age and age squared of workers in the sample.

- (a) Explain we use the probit model instead of linear regression. What alternatives you would suggest instead of probit model?
- (b) Analyze quantitative influence of gender on decision to work.
- (c) Analyze quantitative influence of AGE on decision to work (take also AGE2 into account).
- (d) Compare the estimates of parameters of the probit model with marginal effects and explain their similarities and dissimilarities.

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Probit estimates                                     Number of obs =      48011
                                                    LR chi2(3)      =     14361.19
                                                    Prob > chi2     =       0.0000
Log likelihood = -25355.75                          Pseudo R2      =       0.2207
  
```

| DIDWORK | Coef.     | Std. Err. | z      | P> z  | [95% Conf. Interval] |           |
|---------|-----------|-----------|--------|-------|----------------------|-----------|
| _ISEX_1 | -.2990495 | .0129114  | -23.16 | 0.000 | -.3243553            | -.2737436 |
| AGE     | .2141407  | .0023237  | 92.16  | 0.000 | .2095864             | .218695   |
| AGE2    | -.0026057 | .0000275  | -94.68 | 0.000 | -.0026597            | -.0025518 |
| _cons   | -3.737656 | .0450184  | -83.03 | 0.000 | -3.825891            | -3.649422 |

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Marginal effects after probit
y = Pr(_IDIDWORK_1) (predict)
= .67757262
  
```

| variable | dy/dx     | Std. Err. | z       | P> z  | [ 95% C.I. ] |          | X       |
|----------|-----------|-----------|---------|-------|--------------|----------|---------|
| _ISEX_1  | -.1065777 | .00458    | -23.29  | 0.000 | -.115547     | -.097608 | .526379 |
| AGE      | .0768204  | .00069    | 111.87  | 0.000 | .075474      | .078166  | 37.0025 |
| AGE2     | -.0009348 | .00001    | -118.19 | 0.000 | -.00095      | -.000919 | 1369.18 |

(\*) dy/dx is for discrete change of dummy variable from 0 to 1

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SEX:      0 man
          1 woman
DIDWORK:  0 does not work
          1 works
  
```