

# How do I use adjust in probit or logit?

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## RECOMMENDED CITATION

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Adjusting in probit or logit refers to the process of modifying the coefficients or parameters in a statistical model to achieve a better fit or to account for certain variables. In both probit and logit models, the goal is to estimate the probability of an event occurring based on a set of explanatory variables. Adjusting in these models involves altering the coefficients of the explanatory variables in order to obtain a more accurate prediction of the probability of the event. This can be done through various methods such as maximum likelihood estimation or Bayesian inference. The process of adjusting in probit or logit models is crucial in order to obtain reliable and precise results in statistical analysis.

## How do I use adjust in probit or logit? | Stata FAQ

**Say you have a design that looks like a four group ANCOVA, but your dependent variable is a 0/1 variable.**

**In such**

**a case, running a normal ANCOVA is not really appropriate since the variable is**

**0/1, so instead you use probit. You code the data using dummy**

**codes (b1 through b3) to indicate the group effect and you have a covariate**

**(cov1). You then run the probit as shown below**

```
clear
```

```
input y grp b1 b2 b3 cov1, nolog
```

```
0 1 1 0 0 43
```

```
1 1 1 0 0 54
```

```
0 1 1 0 0 44
```

```
0 2 0 1 0 49
```

1 2 0 1 0 45

1 2 0 1 0 42

0 3 0 0 1 54

1 3 0 0 1 34

1 3 0 0 1 56

0 4 0 0 0 45

0 4 0 0 0 67

1 4 0 0 0 54

end

probit y b1 b2 b3 cov1, nolog

Probit regression Number of obs = 12

LR chi2(4) = 1.48

Prob > chi2 = 0.8300

Log likelihood = -7.5772029 Pseudo R2 = 0.0890

-----  
y | Coef. Std. Err. z P>|z|

-----+-----  
b1 | -.1341121 1.115745 -0.12 0.904 -2.320932 2.052708

b2 | .689892 1.168133 0.59 0.555 -1.599607 2.979391

b3 | .7513844 1.106161 0.68 0.497 -1.416651 2.91942

cov1 | -.0188094 .0544449 -0.35 0.730 -.1255194 .0879006

```
_cons | .6009771 3.061287 0.20 0.844 -5.399034 6.600989
```

---

Then, if you want to get predicted probabilities for each cell, but adjusted for the covariate, you can use the `adjust` command below. Note that `by(grp)` is just giving you the probabilities for the four levels of `grp`.

```
adjust cov1, by(grp) pr ci
```

The output is shown below, with the predicted probabilities and the confidence intervals.

---

```
Dependent variable: y Command: probit
```

```
Variables left as is: b1, b2, b3
```

```
Covariate set to mean: cov1 = 48.916667
```

---

```
grp | pr lb ub
```

-----+-----

1 | .325193

2 | .644598

3 | .667227

4 | .37482

-----

**Key: pr = Probability**

**=**

The results given above are for when cov1 is held constant at its mean value of 48.92. What if we wanted to see the adjusted probabilities when cov1 is held constant at 45 and at 50. This can be accomplished simply by setting the covariate to a given value using an equal sign as shown below.

**adjust cov1=45, by(grp) pr ci**

-----

-----

**Dependent variable: y Command: probit**

**Variables left as is: b1, b2, b3**

**Covariate set to value: cov1 = 45**

-----

---

---

**grp | pr lb ub**

---

**-----+**

**1 | .352137**

**2 | .67164**

**3 | .69355**

**4 | .403056**

---

**Key: pr = Probability**

**=**

**adjust cov1=50, by(grp) pr ci**

---

---

**Dependent variable: y Command: probit**

**Variables left as is: b1, b2, b3**

**Covariate set to value: cov1 = 50**

---

---

**grp | pr lb ub**

---

1 | .317891

2 | .636981

3 | .659791

4 | .36712

---

**Key: pr = Probability**

=

By the way, this will work the same way if you are using logit instead of probit as shown below.

**logit y b1 b2 b3 cov1, nolog**

**Logistic regression Number of obs = 12**

**LR chi2(4) = 1.47**

**Prob > chi2 = 0.8313**

**Log likelihood = -7.5808132 Pseudo R2 = 0.0886**

---

**y | Coef. Std. Err. z P>|z|**

---

**b1 | -.2337632 1.867017 -0.13 0.900 -3.893049 3.425523**

**b2 | 1.108887 1.911031 0.58 0.562 -2.636666 4.854439**

```

b3 | 1.199861 1.809699 0.66 0.507 -2.347084 4.746805
cov1 | -.0290209 .0869278 -0.33 0.738 -.1993962 .1413545
_cons | .9010222 4.897605 0.18 0.854 -8.698107 10.50015

```

---

```

adjust cov1, by(grp) pr ci

```

---

```

Dependent variable: y Command: logit

```

```

Variables left as is: b1, b2, b3

```

```

Covariate set to mean: cov1 = 48.916667

```

---

```

grp | pr lb ub

```

---

```

1 | .32031

```

```

2 | .643435

```

```

3 | .664024

```

```

4 | .373184

```

---

**Key: pr = Probability**

=

**adjust cov1=45, by(grp) pr ci**

-----  
-----  
**Dependent variable: y Command: logit**

**Variables left as is: b1, b2, b3**

**Covariate set to value: cov1 = 45**

-----  
-----  
**grp | pr lb ub**

-----+-----

**1 | .345545**

**2 | .669067**

**3 | .688892**

**4 | .400131**

-----  
**Key: pr = Probability**

=

**adjust cov1=50, by(grp) pr ci**

---

---

**Dependent variable: y Command: logit**

**Variables left as is: b1, b2, b3**

**Covariate set to value: cov1 = 50**

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---

---

**grp | pr lb ub**

---

**1 | .313505**

**2 | .63619**

**3 | .656974**

**4 | .365859**

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**Key: pr = Probability**

**=**