

Here is interpretation of ORs for a nominal DV in a multinomial logistic regression (observed or latent DV). Say that we have 3 classes/categories for the DV, so the last class is class 3. The Odds of being in class 1 versus class 3 is: $\text{Prob}(\text{class 1})/\text{Prob}(\text{class 3})$. The Odds is obtained as $\exp(\text{slope for X})$ and varies over the classes (it is 1 for the last class). The Odds Ratio (OR) is a ratio of Odds for a unit change in X: $X = x+1$ versus $X = x$:

OR for class 1 = (odds of being in class 1 versus class 3 for $X=x+1$) / (the odds of being in class 1 versus class 3 for $X=x$)

OR for class 2 = (odds of being in class 2 versus class 3 for $X=x+1$) / (the odds of being in class 2 versus class 3 for $X=x$)

A positive slope for X gives an OR greater than 1 and implies that an increase in X increases the odds. A negative slope for X gives an OR less than 1 and implies that an increase in X decreases the odds. A zero slope for X gives OR = 1 and implies no effect of X.

Examples:

X = male (1)/female (0). OR=1.5 for class 1 implies that “being a male versus a female increases the odds of being in class 1 versus class 3 by a factor of 1.5”. Or, “the male odds of being in class 1 versus class 3 is 1.5 times higher than the female odds”.

X= Age. OR = 0.8 for class 1 implies that “increasing Age by one unit decreases the odds of being in class 1 versus class 3 by a factor of 0.8”.