

WOE

Normally, the WOE (Weight Of Evidence) formula is presented as follow:

$$WOE_a = \ln(DistGood_i / DistBad_i)$$

And the corresponding formula of IV (Information Value) is:

$$IV_a = \sum_{i=1}^n (DistGood_i - DistBad_i) * \ln(DistGood_i / DistBad_i)$$

These concepts are widely used in credit scorecard development for performing variable selection.

However, one can use another form of WOE and IV:

$$WOE_b = \ln(DistBad_i / DistGood_i)$$

$$IV_b = \sum_{i=1}^n (DistBad_i - DistGood_i) * \ln(DistBad_i / DistGood_i)$$

Just bear in mind that there's a small caution when interpreting the WOE result because $WOE_a = -WOE_b$. IV remains identical $IV_a = IV_b$.