

Module 7: Advanced transformations

(The attached PDF file has better formatting.)

Homework assignment: Logit and probit transformations

The logit transformation is tested on the final exam; the probit transformation is not tested. This homework assignment shows their practical equivalence for transforming data.

The textbook says that “once their scales are equated, the logit and probit transformations are, for practical purposes, indistinguishable: $\text{logit} \approx (\pi/\sqrt{3}) \times \text{probit}$.”

- A. Explain the logit and probit transformations. A one sentence explanation is sufficient.
- B. Fill in the table below to compare the two transformations.
- C. In what range are the two transformations practically equivalent? In what ranges might the two transformations give different results? (The formula for the logit transformation is in the textbook. Excel gives the probit transformation as the inverse of the CDF of the standard normal distribution.)

<i>P</i>	<i>Logit</i>	<i>Probit</i>	<i>P</i>	<i>Logit</i>	<i>Probit</i>
0.001			0.5		
0.002			0.6		
0.01			0.8		
0.02			0.9		
0.1			0.98		
0.2			0.99		
0.4			0.998		
0.5			0.999		