**MODELS:**

**\*2-parameter with lognormal heteroscedastic error**

**proc** **model** data=mydata method=Marquardt PRL=both;

parms a=**1** b=**1**;

Y = a \* X\*\*b\*exp(c\*X2);

resid.Y = log10 (actual.Y/pred.Y);

fit Y/ FIML normal white breusch=(**1** X) out = output1 outpredict outresid;

**run**;

**\*2-parameter normal homoscedastic**

**proc** **model** data=mydata method=Marquardt PRL=both;

parms a=**1** b=**1**;

Y = a \* X\*\*b\*exp(c\*X2);

h.Y = sigma\*\***2**;

fit Y/ FIML normal white breusch=(**1** X) out = output2 outpredict outresid;

**run**;

**\*2-parameter normal heteroscedastic**

**proc** **model** data=mydata method=Marquardt PRL=both;

parms a=**1** b=**1**;

Y = a \* X\*\*b\*exp(c\*X2);

h.Y = sigma\*\***2** \* (X\*\*(**2**\*alpha));

fit Y / FIML normal white breusch=(**1** X) out = output3 outpredict outresid;

**run**;

**\*3-parameter log-normal heteroscedastic**

**proc model** data=mydata method=Marquardt PRL=both;

parms a=**1** b=**1**;

Y = a \* X\*\*b\*exp(c\*X2) + d;

resid.Y = log10 (actual.Y/pred.Y);

fit Y/ FIML normal white breusch=(**1** X) out = output4 outpredict outresid;

**run**;

**\*3-parameter normal homoscedastic**

**proc** **model** data=mydata method=Marquardt PRL=both;

parms a=**1** b=**1**;

Y = a \* X\*\*b\*exp(c\*X2) + d;

h.Y = sigma\*\***2**;

fit Y/ FIML normal white breusch=(**1** X) out = output5 outpredict outresid;

**run**;

**\*3-parameter normal heteroscedastic**

**proc** **model** data=mydata method=Marquardt PRL=both;

parms a=**1** b=**1**;

Y = a \* X\*\*b\*exp(c\*X2) + d;

h.Y = sigma\*\***2** \* (X\*\*(**2**\*alpha));

fit Y/ FIML normal white breusch=(**1** X) out = output6 outpredict outresid;

**run**;

**\*simple linear regression with normal homoscedastic error**

**proc** **model** data=mydata method=Marquardt PRL=both;

Y = a + b\*X + c\*X2;

h.Y = sigma\*\***2**;

fit Y/ FIML normal white breusch=(**1** X) out = output7 outpredict outresid;

**run**;

**\*simple linear regression with normal heteroscedastic error**

**proc** **model** data=mydata method=Marquardt PRL=both;

Y = a + b\*X+c\*X2;

h.Y = sigma\*\***2** \* (X\*\*(**2**\*alpha));

fit Y/ FIML normal white breusch=(**1** X) out = output8 outpredict outresid;

**run**;

**\*simple linear regression with lognormal heteroscedastic error**

**proc** **model** data=mydata method=Marquardt PRL=both;

Y = a + b\*X+c\*X2;

resid.Y = log10 (actual.Y/pred.Y);

fit Y/ FIML normal white breusch=(**1** X) out = output9 outpredict outresid;

**run**;

**\*straight line no intercept with normal homoscedastic error**

**proc** **model** data=mydata method=Marquardt PRL=both;

Y = b\*X + c\*X2;

h.Y = sigma\*\***2**;

fit Y/ FIML normal white breusch=(**1** X) out = output10 outpredict outresid;

**run**;

**\*straight line no intercept with normal heteroscedastic error**

**proc** **model** data=mydata method=Marquardt PRL=both;

Y = b\*X+c\*X2;

h.Y = sigma\*\***2** \* (X\*\*(**2**\*alpha));

fit Y/ FIML normal white breusch=(**1** X) out = output11 outpredict outresid;

**run**;

**\*straight line no intercept with lognormal heteroscedastic error**

**proc** **model** data=mydata method=Marquardt PRL=both;

Y = b\*X+c\*X2;

resid.Y = log10 (actual.Y/pred.Y);

fit Y/ FIML normal white breusch=(**1** X) out = output12 outpredict outresid;

**run**;