It is known that it is difficult to work with large number of animals due to difficulties in finding enough animal and cost constraint. In this case, the preconditions of parametric tests in many studies may not be met. This study demonstrates how and under which circumstances Theil regression, one of the regression methods used when precondition of parametric tests is not met, can be used. For this purpose, Theil method was applied on egg weight (Ew), albumen height (Ah) of different sample width (5, 10, 20 and 48) of randomly chosen 48 Japanese quails and was interpreted together with results obtained from linear regression. Theil regression equations for different sample width were as follow: Ah=-6.635+0.873*Ew' (??=0.6: P>0.05), 'Ah=-3.387+0.647*Ew' (??=0.6: P<0.05), 'Ah=2.429+0.201*Ew' (??=0.6: P>0.05), 'Ah=4.86+0.127 * Ew' (??=0.6: P>0.05). Linear regression equations for different sample width were as follow: ‘Ah=-4.51+0.714*Ew’ (F=7.74: P>0.05), ‘Ah=-2.82+0.596*Ew (F=7.74: P>0.05), ‘Ah=2.99+0.151*Ew’ (F=7.74: P>0.05), ‘Ah=3.59+0.098*Ew’(F=7.74: P>0.05). Results showed that Theil method can be used for analyzing small sample sizes as it gave similar results and conclusions to linear regression.