Analyzing woman's labor force data using Negative Binomial Regression Model

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Abstract:

The participation of Egyptian women in the labor force is an important issue that occupied an important place recently. In spite of all efforts that were made in this framework, it still appears that there are many challenges that impact negatively on the ability of Egyptian women to actively participate in economic life. This paper used the female's labor force data of Upper Egypt in years 2011 and 2013. This paper used the plots of residuals versus the mean to determine if the variance is too large or not. The plots show that in both years 2011 and 2013 there is over-dispersion in the data and the variance is too large. In this case the Negative binomial regression can be used to minimize over-dispersed data that's when the variance is greater than the mean. The Negative binomial regression model can be used as a generalization of Poisson regression because it has the same mean formation as Poisson regression and it has an extra parameter to detect the over-dispersion. The results show that using the Negative binomial regression helps in minimizing both over dispersion and the value of the dispersion parameter.

Keywords: Upper Egypt, Poisson regression, dispersion parameter.