

## **Additive Expectancy Regression**

Ying Qing Chen

*Fred Hutchinson Cancer Research Center*

Regression is a useful tool for studying association between an outcome variable and its covariates. In a classical linear regression model, the outcome's expectation is usually a function of the covariates and some regression parameters, and the underlying distribution is often normal. In this article, we propose a new class of additive expectancy regression models in which the outcomes tend to be positively skewed. In the new regression models, regression parameters are practically meaningful and also useful with inferences on the means of skewed outcomes. Parametric and semiparametric methods are developed for model estimation and inferences. Model-based prediction and model adequacy assessment are discussed. The proposed methodologies are demonstrated by two real data analyses.

[ Ying Qing Chen, Fred Hutchinson Cancer Research Center, 1100 Fairview Ave N, LE-400, Seattle, WA 98109, USA; yqchen@ssharp.org]