

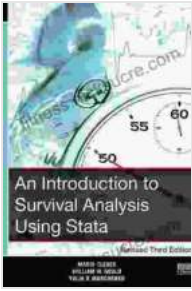
# **An Introduction to Survival Analysis Using Stata, Revised Third Edition: A Comprehensive Guide to Survival Analysis Techniques with Stata**

Survival analysis is a statistical method used to analyze the time until an event of interest occurs. It is commonly used in medical research to study the time to death, disease recurrence, or other clinical events. Survival analysis can also be used in other fields, such as economics, engineering, and social sciences, to study the time to failure of a product, the time to complete a task, or the time to an event of interest.

Stata is a powerful statistical software package that can be used to perform survival analysis. Stata provides a wide range of commands for survival analysis, including commands for estimating survival models, testing hypotheses, and interpreting results.

This article provides a comprehensive overview of survival analysis using Stata. It covers the fundamentals of survival analysis, including concepts such as survival functions, hazard functions, and censoring. The article also provides a detailed explanation of how to perform survival analysis in Stata, including how to estimate survival models, test hypotheses, and interpret results. Finally, the article provides an overview of some of the advanced topics in survival analysis, such as competing risks and frailty models.

**An Introduction to Survival Analysis Using Stata,  
Revised Third Edition** by Mario Cleves



★★★★☆ 4.6 out of 5

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Survival analysis is based on the concept of the survival function. The survival function is the probability that an individual will survive for a given amount of time. The survival function can be estimated from data using a variety of methods, including the Kaplan-Meier method and the Nelson-Aalen method.

The hazard function is the instantaneous rate of failure at a given time. The hazard function can be estimated from data using a variety of methods, including the Cox proportional hazards model and the Weibull model.

Censoring is a common problem in survival analysis. Censoring occurs when the time to event is not observed for all individuals in the study. There are two main types of censoring: right censoring and left censoring. Right censoring occurs when the individual is still alive at the end of the study. Left censoring occurs when the individual entered the study after the event of interest had already occurred.

Stata provides a wide range of commands for survival analysis. These commands can be used to estimate survival models, test hypotheses, and interpret results.

The following is a brief overview of the most commonly used Stata commands for survival analysis:

- **stset**: This command is used to create a survival data set.
- **stsum**: This command is used to summarize the survival data.
- **stcurve**: This command is used to plot the survival curve.
- **stcox**: This command is used to fit a Cox proportional hazards model.
- **stweibull**: This command is used to fit a Weibull model.
- **streg**: This command is used to fit a parametric survival model.
- **sttest**: This command is used to test hypotheses about the survival function.
- **stci**: This command is used to calculate confidence intervals for the survival function.

In addition to the basic concepts of survival analysis, there are a number of advanced topics that can be explored. These topics include:

- **Competing risks**: Competing risks occur when an individual can experience more than one type of event. For example, a cancer patient may be at risk of death from cancer or from other causes.
- **Frailty models**: Frailty models are used to account for unobserved heterogeneity in the survival experience. For example, a frailty model can be used to account for the fact that some individuals are more likely to experience an event than others.

Survival analysis is a powerful statistical method that can be used to analyze the time until an event of interest occurs. Stata is a powerful statistical software package that can be used to perform survival analysis. This article has provided an overview of the fundamentals of survival analysis, how to perform survival analysis in



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