
Subject: Discrete Time Vs Continous Time Survival Model

Posted by shujaat.smc@gmail.com on Wed, 25 Nov 2020 11:10:06 GMT

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Dear DHS Representative,

I am working on the determinants of neonatal mortality in Pakistan. (PDHS 2017-18 using BR file). Using Stata 13.

I have declared my data as survival time data by generating the time variable for neonatal death in days (n; 1 to 30 i.e discrete-time) and then building regression model in stepwise forward direction, first gone through semi-parametric cox model & then Parametric survival model.

Today I was going through the book "Applied Survey Data Analysis Using Stata: The Kauffman Firm Survey Data". In this book they have shared that for discrete-time model are built on the following stata commands "svy: logit reporting Odds Ratio" & "svy: cloglog reporting Hazard ratio".

When I tried the same command for my data which was declared as survey & survival time data, I got the error message.

I have all literature published on neonatal mortality using DHS data that authors use cox-proportional hazard model or parametric survival model for Discrete time, which according to this book is incorrect since we have time of death in days (discrete) and not continuous time.

Kindly explain my query.

Best Regards

Dr. Hussain

Subject: Re: Discrete Time Vs Continous Time Survival Model

Posted by [Bridgette-DHS](#) on Wed, 25 Nov 2020 12:57:44 GMT

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Following is a response from DHS Research & Data Analysis Director, Tom Pullum:

DHS staff cannot provide answers to such specific questions about statistical methods or estimation procedures in Stata. If you want to continue with this method, I hope other users will be able to help.

Note that neonatal deaths occur at age 0 months, a very compressed range. Timing within that first month after the birth is captured very well by the distinction between early neonatal (completed days 0-6, or b6 in the range 100 to 106) and late neonatal. Also for neonatal deaths you have virtually no censoring. The only censored cases will be births in the month (or 28 days) prior to the day of interview and you can just drop them. Also I don't think the assumption of proportional hazards (within the first month) that is built into Cox regression is appropriate or

necessary. I would just use logit regression.

Subject: Re: Discrete Time Vs Continuous Time Survival Model
Posted by shujaat.smc@gmail.com on Wed, 25 Nov 2020 15:24:54 GMT
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Dear Tom Pullum,

Thanks for your reply. Please comment on the following two points

1) what is the range for the b6 variable for late neonatal death. (like you mentioned for early neonatal death.

2) There is a lot of literature published in well-reputed international journals on determinants of neonatal mortality, however, some use multiple logistic regression models & some use semi-parametric cox proportional hazard models or parametric survival models using DHS data. Please clarify, what is the statistical reason behind choosing one of two totally different regression methods when we have time variables in data.

I am asking this because in the light of statistical principle if a researcher has a time variable (age at death) then there is no choice except using survival time models.

Best Regards

Dr. Hussain

Subject: Re: Discrete Time Vs Continuous Time Survival Model
Posted by [Bridgette-DHS](#) on Wed, 25 Nov 2020 16:06:43 GMT
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Following is a response from DHS Research & Data Analysis Director, Tom Pullum:

Strictly speaking, neonatal deaths are in the first 28 days (completed days) after birth. Early neonatal deaths have b6 in the range 100 to 106 (the first 7 days) and late neonatal deaths have b6 in the range 107 to 127. I just looked at PKBR71FL.dta and see there are 9 deaths at b6=128 and 128 is the highest code in days. I would include those 9 deaths as late neonatal deaths but you may choose not to. I am sure there is some reporting error, especially when you get down to days of age at death.

We cannot give any advice on your statistical methods.

Subject: Re: Discrete Time Vs Continuous Time Survival Model
Posted by shujaat.smc@gmail.com on Wed, 25 Nov 2020 16:10:29 GMT
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Dear Tom Pullum,

Thanks a lot for your reply and guidance on specifying the time variable (b6) for neonatal death.

Best Regards

Dr. Hussain
