

CONTENTS - MAIN TEXT

CHAPTER 01 - The scope of survival analysis

1.1	Introduction	Page 001
1.2	The definition of failure times	001
1.3	Censoring	002
1.4	How is the data obtained and why?	003
1.5	<i>Simulation by what method?</i>	003
1.5.1	The theory of urand	005
1.5.2	Weibull distribution	005
1.6	<i>Models</i>	005
1.6.1	No censoring	005
1.6.2	Simplest (constant) censoring	005
1.6.3	Realistic case I	006
1.6.4	Realistic case II	006
1.7	<i>Examples</i>	006
1.7.1	Uncensored	007
1.7.2	Simplest (constant) censoring	007
1.7.3	Realistic case I	007
1.7.4	Realistic case II	007
1.8	Computing	007
1.9	Summary	008

CHAPTER 02 - Distributions of failure time

2.1	Introduction	009
2.2	Survivor functions	009
2.3	Hazard functions and integrated hazard	009
2.4	Computing	010
2.5	<i>Properties of probability distributions</i>	010
2.5.1	The Weibull distribution	010
2.5.1.1	Survivor function	015
2.5.1.2	Hazard function	015
2.5.1.3	PDFs	016
2.5.1.4	Integrated hazard	016
2.5.1.5	Statistics	016
2.6	Summary	017
2.7	Later Work	018

CHAPTER 03 - Log likelihood

3.1	Aims	019
3.2	<i>Log likelihood (Weibull distribution)</i>	019
3.2.1	Derivation of the iterative scheme for kappa	019
3.2.2	How the elements of the information matrix are obtained	020
3.3	<i>Asymptotic Theorem for MLEs</i>	020
3.3.1	Multiparameter case	020
3.3.1.1	EXAMPLE	020
3.4	<i>Examples</i>	020
3.4.1	Uncensored	021
3.4.2	Constant censoring	021
3.4.3	Realistic case I	021
3.4.4	Realistic case II	021

3.5	<i>Exponential Family</i>	021
3.5.1	Property of the Exponential Family	022
3.6	<i>A test for exponentiality</i>	023
3.6.1	Examples	023
3.7	Computing	023
3.8	Summary	024
3.9	Later Work	025

CHAPTER 04 - Product limit estimator

4.1	Assumptions	026
4.2	Definition	026
4.3	<i>Tests</i>	028
4.3.1	Description of the K-S test	028
4.4	Uses of product limit estimators	028
4.5	Computing	028
4.6	Summary	029
4.7	Later Work	029

CHAPTER 05 - Dependence on explanatory variables : Model formulation

5.1	Introduction	030
5.2	<i>Accelerated life model</i>	030
5.2.1	Introduction	030
5.2.2	Simple form	030
5.2.3	Some consequences useful for model checking	031
5.2.4	Parametric version	031
5.2.4.1	Comparisons	032
5.2.4.1.1	Introduction	032
5.2.4.1.2	Statistics	032
5.2.5	Uses of the accelerated life model	032
5.3	<i>Proportional hazards model</i>	034
5.3.1	Introduction	034
5.3.2	Relation with accelerated life model	034
5.4	<i>Computing</i>	041
5.4.1	Survivor functions, etc (With subroutines)	041
5.4.2	Product limit estimator (With subroutines)	041
5.5	Summary	041
5.6	Later Work	041

CHAPTER 06 - Fully parametric analysis of dependence

6.1	Introduction	042
6.2	<i>The likelihood (revisited)</i>	042
6.2.1	Iterative schemes	042
6.3	Computing	043
6.4	Summary	043

CHAPTER 07 - Conclusions

7.1	What have I learned from this project	044
7.2	Uses	044

CONTENTS - REFERENCE SECTION

REFERENCES

045

CONTENTS - APPENDICES

APPENDIX 01 - Glossary of symbols used	046
APPENDIX 02 - Fortran 77 (F77) programs	051
APPENDIX 03 - GLIM 3.77 Programs	268
APPENDIX 04 - GLIM Macros for survival analysis	294
APPENDIX 05 - <i>Use of logistic regression in medical statistics</i>	300
A5.1 Introduction	300
A5.2 Relative risk (RR)	300
A5.2.1 Examples	301
A5.3 Confidence limits on relative risks	301
A5.3.1 An example	301

INDEX FOR SOME ESSENTIAL TERMS

KEY: FP21 means F77 Program 21
 GP2 means GLIM 3.77 Program 2

Accelerated life model	17, 22, 26, 29, 30-40, FP21-FP24, GP2-6
Censoring	2-3
Exponential Family	21-22
K-S test	28, FP13-FP16
Likelihood ratio test	23, FP17-20
Models, censoring rules	5-6
Product limit estimator	26-29, 40 (Graph), FP9-FP16, FP23
Proportional hazards model	17, 22, 34-39
RESLOT, GLIM Macro	296-297, GP2-6
Simulation	3-5
Urand, Function	3, 5, 52, FP1-24
WEIBULL, GLIM Macro	294-296, GP2-6