
Contents

How long do we live? Demographic models and reflections on tempo effects: An introduction	1
<i>Elisabetta Barbi</i>	
1 Background	1
2 Overview of the monograph.....	3
References	8

I. Theoretical basis for the mortality tempo effect

Estimating mean lifetime	11
<i>John Bongaarts, Griffith Feeney</i>	
1 Methods	12
2 Results.....	15
3 Conclusion	23
References	24
Appendix A	25
Appendix B	26
The quantum and tempo of life-cycle events	29
<i>John Bongaarts, Griffith Feeney</i>	
1 Introduction	29
2 Background: age-specific event rates	30
3 Period quantum and tempo measures of the 2nd kind	32
4 Period quantum and tempo measures of the 1st kind	46
5 Conclusion	56
References	58
Appendix A	62
Appendix B	63

II. Critiques, extensions and applications of the mortality tempo effect

Demographic translation and tempo effects: An accelerated failure time perspective	69
<i>Germán Rodríguez</i>	
1 Introduction	69
2 Fertility	71
3 Mortality	79
4 Discussion	89
References	91
Lifesaving, lifetimes and lifetables	93
<i>James W. Vaupel</i>	
1 Introduction	93
2 How saving a life alters life expectancy	95
3 Individual lifetimes	97
4 The triangle of turbulence	99
5 How large is the distortion?	100
6 Considerations about true life expectancy	101
7 A model of stretched lifetimes	103
8 Quantum and tempo vs. proportions and increments	103
9 Directions for research	104
References	107
Tempo and its tribulations	109
<i>Kenneth W. Wachter</i>	
1 Tempo	109
2 Measures	111
3 Representation of M	113
4 The moving average	116
5 Period counts of deaths	119
6 Current latent conditions	120
7 Total fertility	123
References	127
Tempo effects in mortality: An appraisal	129
<i>Michel Guillot</i>	
1 Introduction	129
2 The existence of tempo effects in mortality	131
3 Bongaarts and Feeney's tempo-adjusted life expectancy	134
4 Evaluating Bongaarts and Feeney's "proportionality" assumption	135
5 Bongaarts and Feeney's definition of changes in period mortality conditions	139
6 Assessing indicators of period mortality conditions: e_0 vs. CAL	144

7	Conclusion	149
	References	150
	Increments to life and mortality tempo	153
	<i>Griffith Feeney</i>	
1	Time-discrete increments to life	153
2	Empirical results: Swedish females, 1751-2002	154
3	Time-continuous cohort-indexed increments to life	155
4	Time-continuous period-indexed increments to life	158
5	Relation between cohort and period increments to life	159
6	Robustness of the Bongaarts-Feeney tempo adjustment formula	162
7	Increments to life and mortality tempo: mixed models	163
8	Conclusion	164
	References	165
	Mortality tempo versus removal of causes of mortality: Opposite views leading to different estimations of life expectancy	167
	<i>Hervé Le Bras</i>	
1	Introduction	167
2	Decreasing mortality as a sign of delay in deaths	168
3	Decreasing mortality as a change in the causes of death	170
4	Removing one cause of death: deeper insights	171
5	A numerical example of the two methods	172
6	Which life table is the reference table?	174
7	Unifying the two views: the repartition function of the delays by age and duration	176
8	Which is the best model? A discussion of the two methods	178
	References	182
	Appendix A	182
	Appendix B	184
	Appendix C	187
	Tempo effect on age-specific death rates	191
	<i>Shiro Horiuchi</i>	
1	Introduction	191
2	Intuitive visual explanation	192
3	Mathematical presentation	195
4	Discussion	197
	References	199
	Appendix	200
	Mortality tempo-adjustment: Theoretical considerations and an empirical application	203
	<i>Marc Luy</i>	
1	Introduction	203

2	How mortality tempo affects period life expectancy	206
3	Why life expectancy differences between western and eastern Germany call for tempo-adjustment	210
4	Trends in tempo-adjusted life expectancy in western and eastern Germany	215
5	Discussion	218
	References	224
	Appendix	229

III. Comparison of period and cohort measures of longevity

	Five period measures of longevity	237
	<i>John Bongaarts</i>	
1	Introduction	237
2	Definitions of period longevity measures	238
3	Results	239
4	Discussion	241
5	Conclusion	244
	References	244

	Found in translation? A cohort perspective on tempo-adjusted life expectancy	247
	<i>Joshua R. Goldstein</i>	
1	Introduction	247
2	Proof of exact cohort translation	249
3	Discussion	251
4	Conclusion	257
	References	258

IV. Conclusions

	Afterthoughts on the mortality tempo effect	263
	<i>John Bongaarts, Griffith Feeney</i>	
1	Do tempo adjusted period longevity measures reflect current mortality conditions?	263
2	Conclusion	268
	References	269

	Turbulence in lifetables: Demonstration by four simple examples	271
	<i>James W. Vaupel</i>	
1	Introduction	271
2	Saving infant lives for one year	272
3	Saving infant lives for three years	274

4	Saving infant lives for two years on average	274
5	Saving everyone's life for one year	275
6	Discussion	278

Appendix

Two proofs of a recent formula by Griffith Feeney		283
<i>Jutta Gampe, Anatoli Yashin</i>		
1	Introduction	283
2	Proof by Jutta Gampe	283
3	Proof by Anatoli Yashin	284
References		284