Birth cohort patterns suggest that infant survival predicts adult mortality rates
Supplementary information

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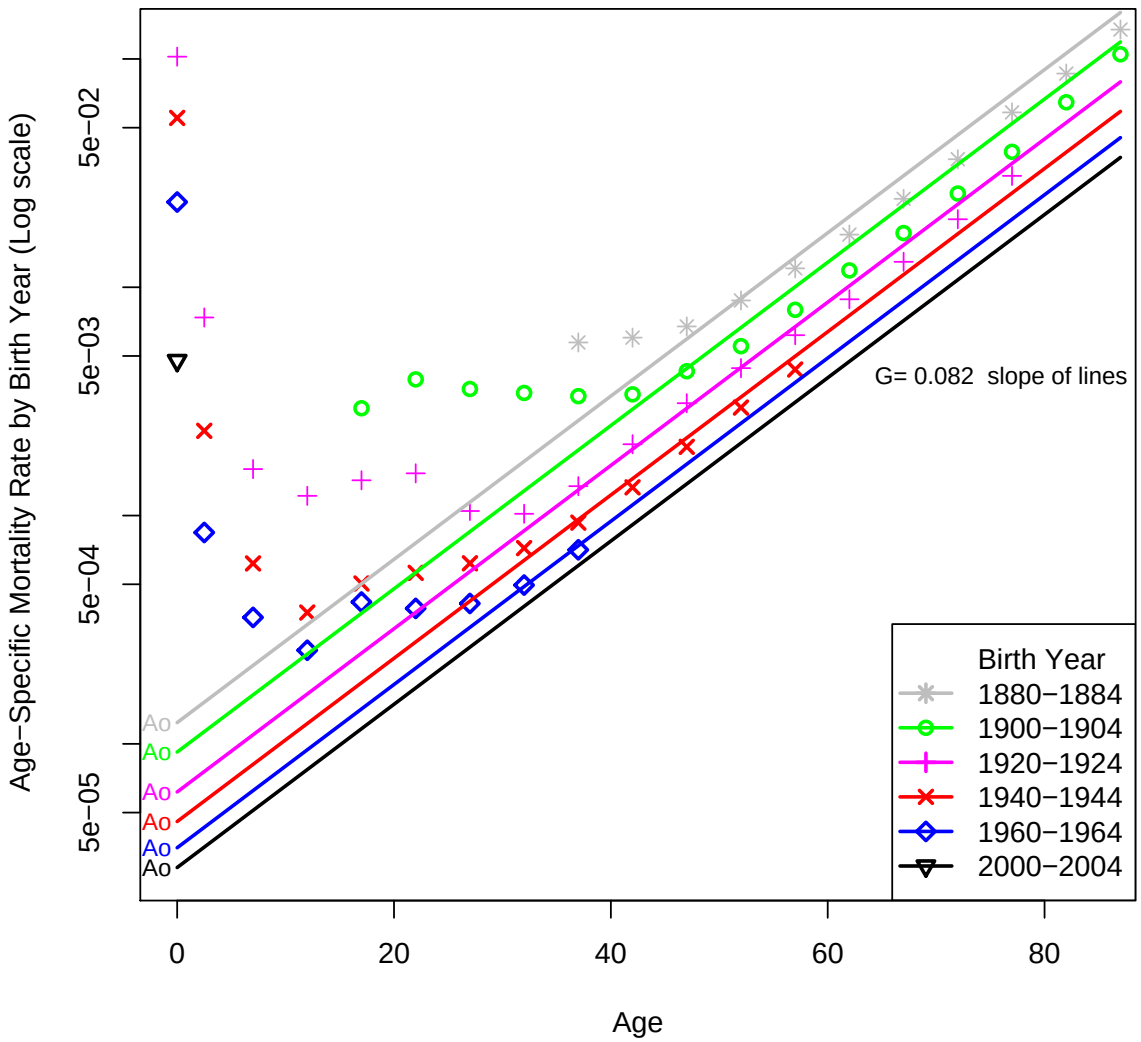

Figure S1: Theoretical concept of the Gompertz mortality function. Based on Canadian data, the women adult mortality rates double every 8.4 years (=$log(2)/G$). The departure from linearity for the earlier birth cohorts may be associated with the high mortality due to childbearing for those cohorts.

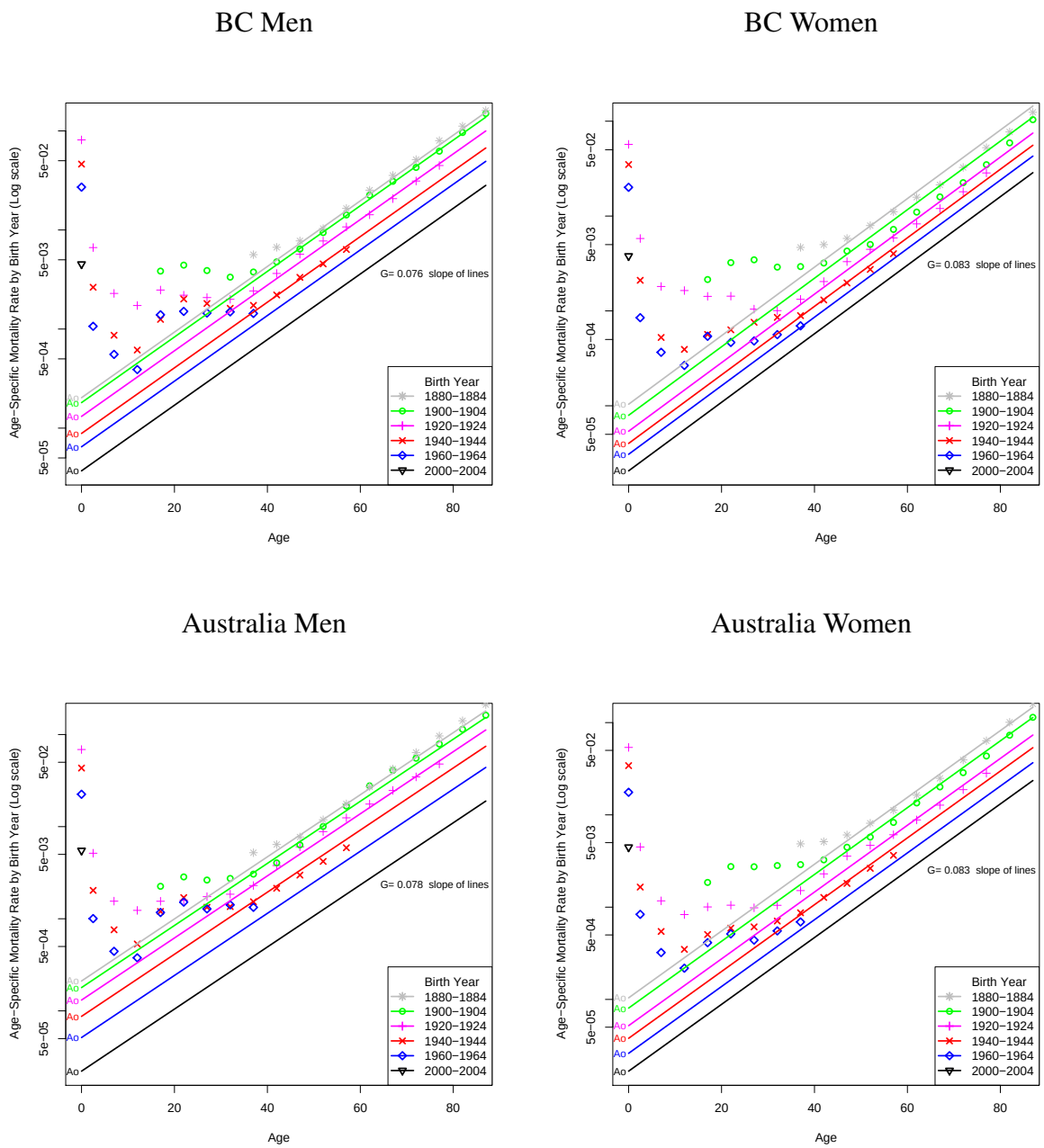

Figure S2: Theoretical concept of the Gompertz mortality function. Based on British Columbia and Australia data.

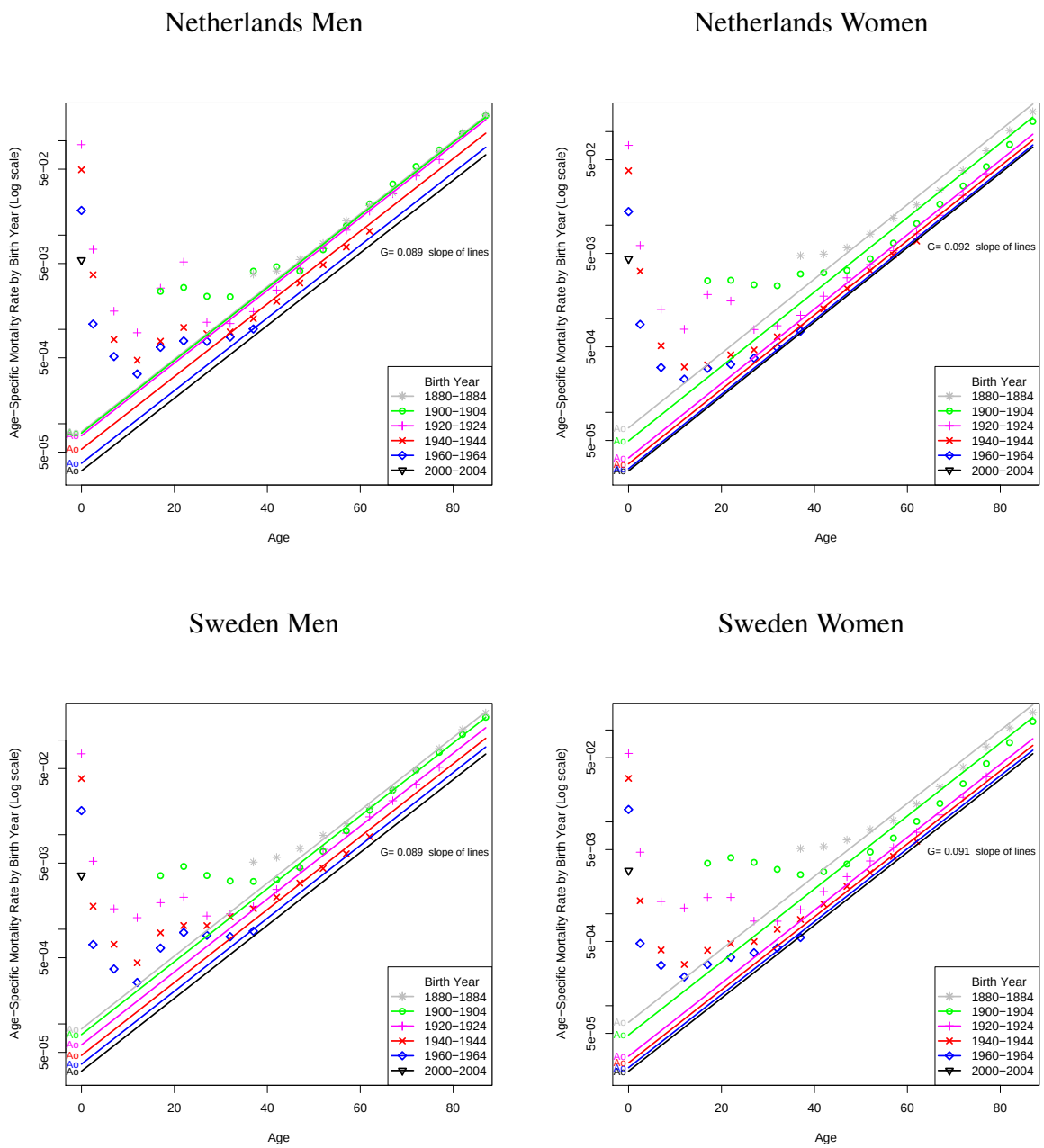

Figure S3: Theoretical concept of the Gompertz mortality function. Based on Netherlands and Sweden data.

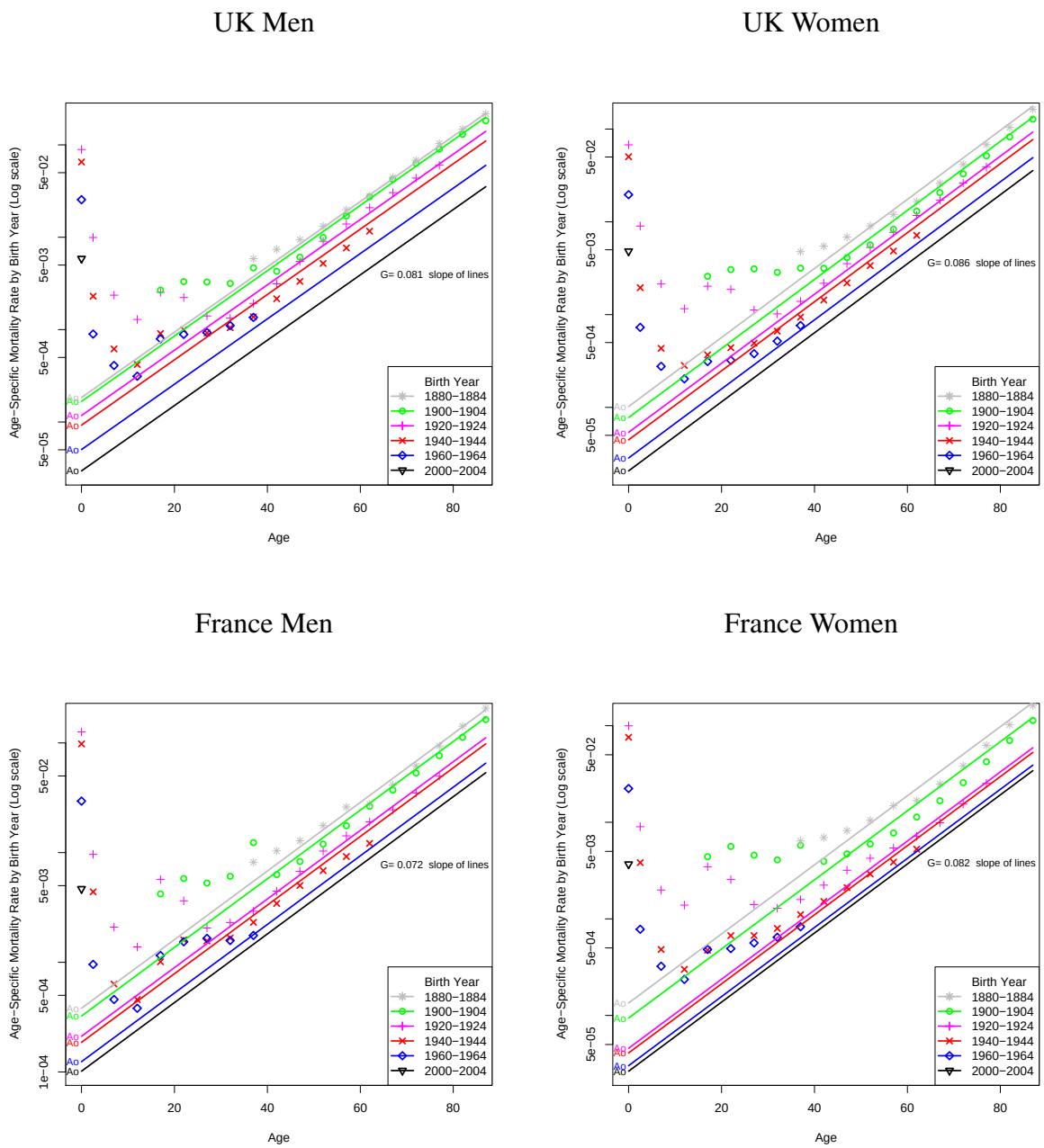

Figure S4: Theoretical concept of the Gompertz mortality function. Based on UK and France data.

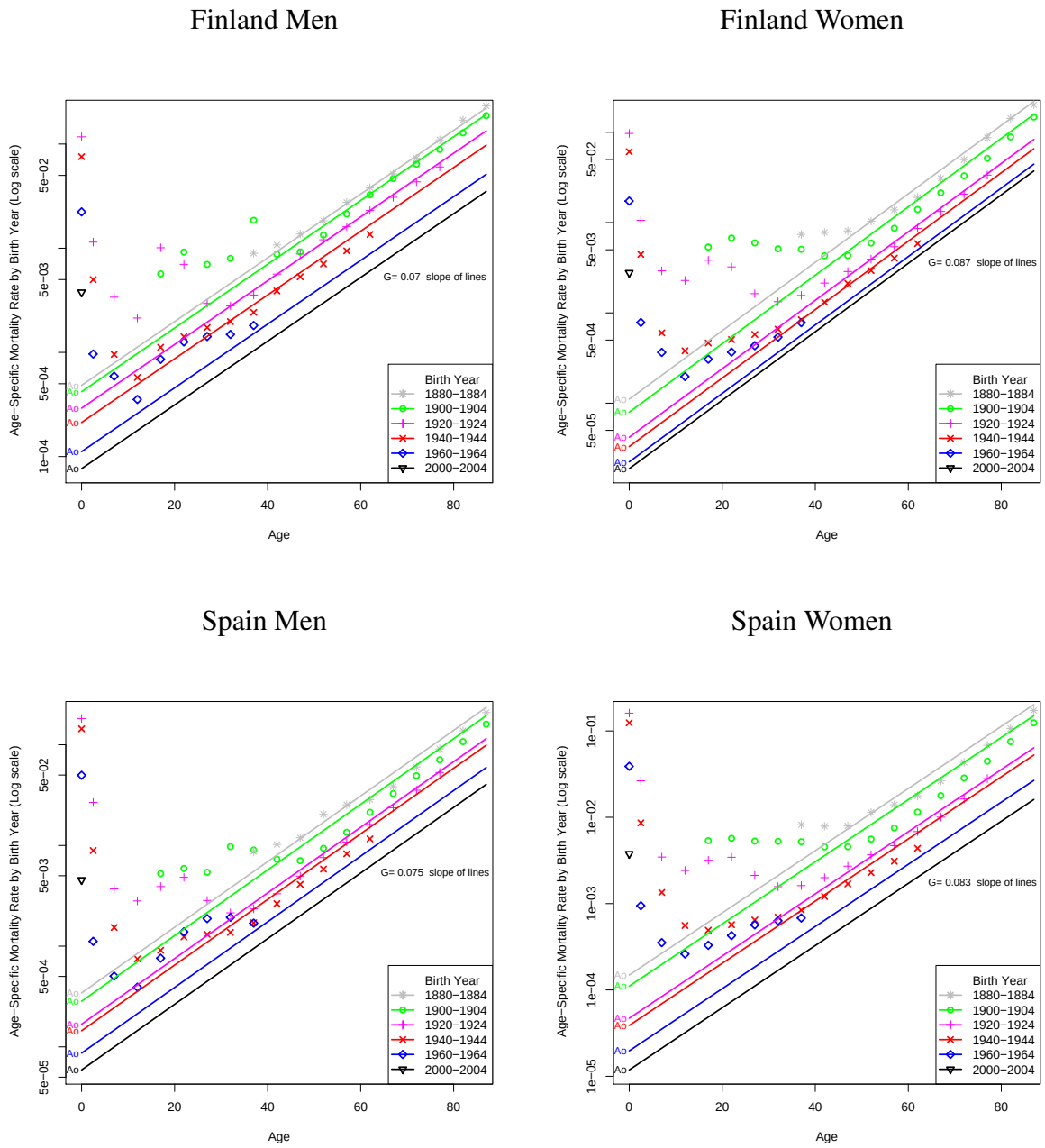

Figure S5: Theoretical concept of the Gompertz mortality function. Based on Finland and Spain data

Table S1: Akaike Information Criteria (AIC)* values for the Gompertz Cohort (GC) and Gompertz Cohort-Period (GC-P) models relative to the Gompertz Period (GP) model**.

		GP	GC	GC-P
British Columbia	Men	0	-3108	-3428
	Women	0	-614	-1660
Australia	Men	0	-15776	-28392
	Women	0	-14264	-16296
Netherlands	Men	0	-10204	-16320
	Women	0	-558	-19262
Sweden	Men	0	-3926	-7516
	Women	0	-14870	-21602
Finland	Men	0	-10940	-13098
	Women	0	-18004	-21942
Spain	Men	0	-19690	-106698
	Women	0	-187074	-283934
France	Men	0	16260	-53174
	Women	0	-113660	-191778
UK	Men	0	-80980	-104024
	Women	0	-29804	-60998
US***	Men	0	-123906	-166882
	Women	0	94034	-68988
Japan***	Men	0	-42506	-61270
	Women	0	-175338	-188600

* -2*log(Likelihood)+2* no. of estimated parameters

** Relative values that weight the goodness of fit of the model to empirical data. The lower the AIC, the better the model fit.

*** US mortality data covers the period of 1933-2004. Japan mortality data covers the period of 1947-2004. For other countries, the corresponding mortality data covers the period 1921-2004.

Table S2: Akaike Information Criteria (AIC) values for alternative models of adult mortality relative to the Gompertz model*.

		Alt-P	Alt-C	Alt-C-P
Power of age	Men	687484	712260	50196
	Women	1911146	804060	296560
Logistic	Men	20310	58	60
	Women	935814	1374	1284
Weibull	Men	3226198	712206	50488
	Women	3431682	804046	75378

*Based on Canadian data. Relative values that weight the goodness of fit of the model to empirical data. The higher the relative AIC, the worse the model fit in comparison with the Gompertz model.

Table S3: Akaike Information Criteria (AIC) values for common men/women models of mortality relative to independent fits*.

	GC
Common Gompertz parameters	1166084
Common birth cohort effects	60576
Common model for women and men	504724

*Based on Canadian data.

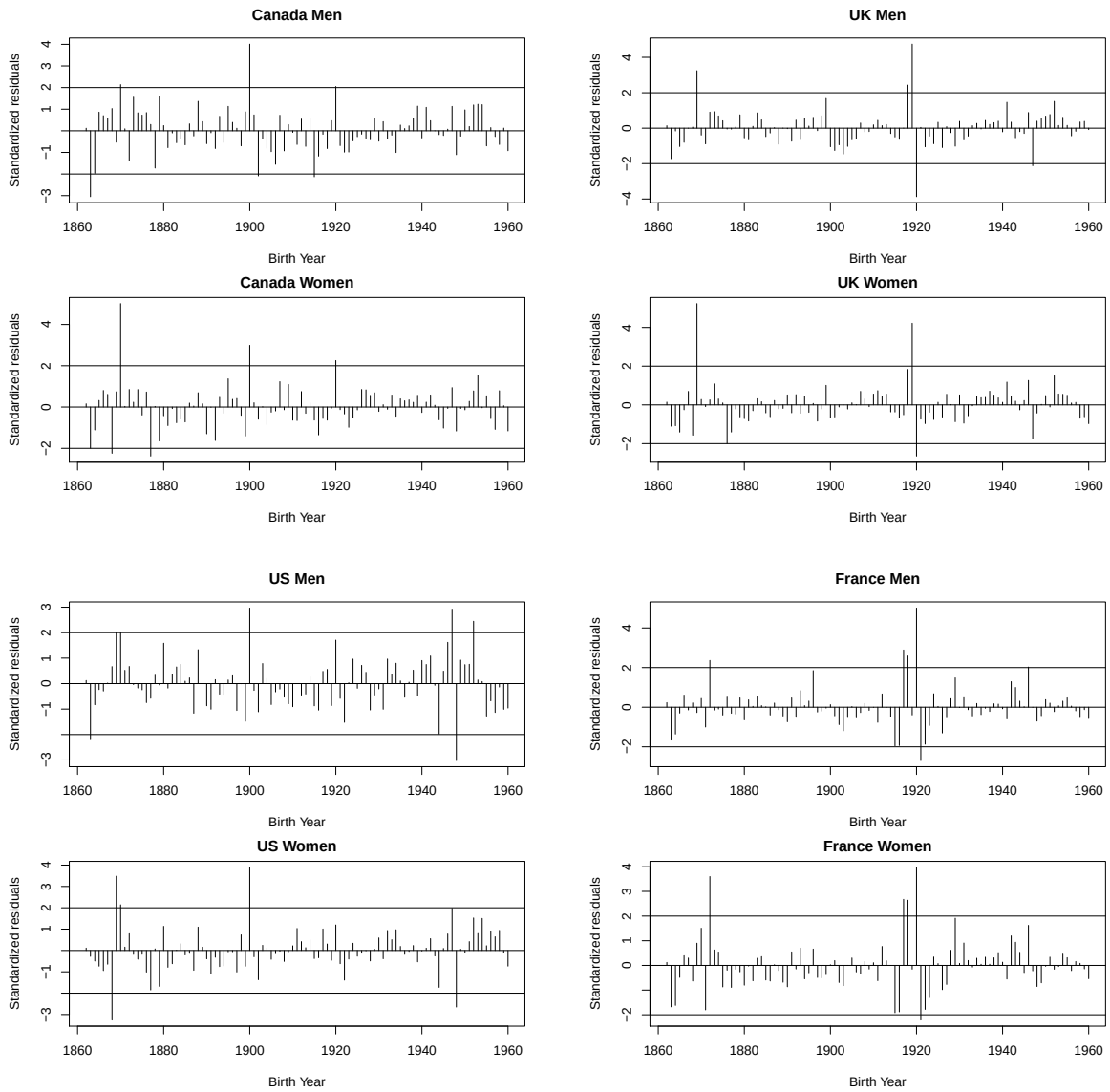

Figure S6: Standardized residuals from ARIMA(10,0,1) time series models of the birth-cohort effects for Canada, UK, US and France. A residual larger than two in absolute value indicates a significant departure of the corresponding birth-cohort mortality from the expected trend. For selected countries the 1900, 1920 and 1944 birth cohorts exhibit significantly higher adult mortality rates.

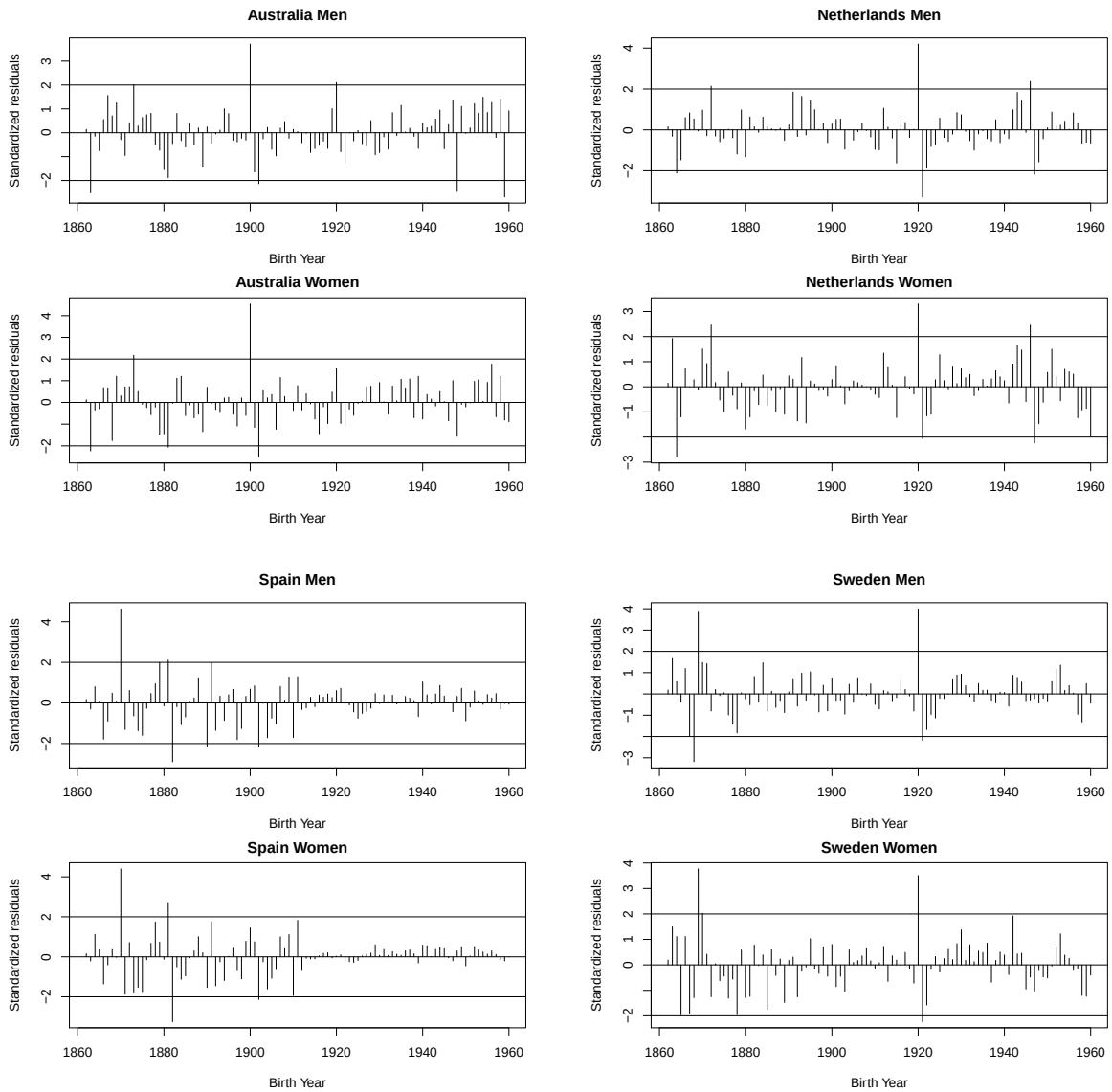

Figure S7: Standardized residuals from ARIMA (10,0,1) time series models of the birth-cohort effects for Australia, Netherlands, Spain and Sweden. A residual larger than two in absolute value indicates a significant departure of the corresponding birth-cohort mortality from the expected trend. For selected countries the 1900, 1920 and 1944 birth cohorts exhibit significantly higher adult mortality rates.