

Complete results

2024-08-21

Italian Data from WHO. 5-years ages classes from 0 to 80+.

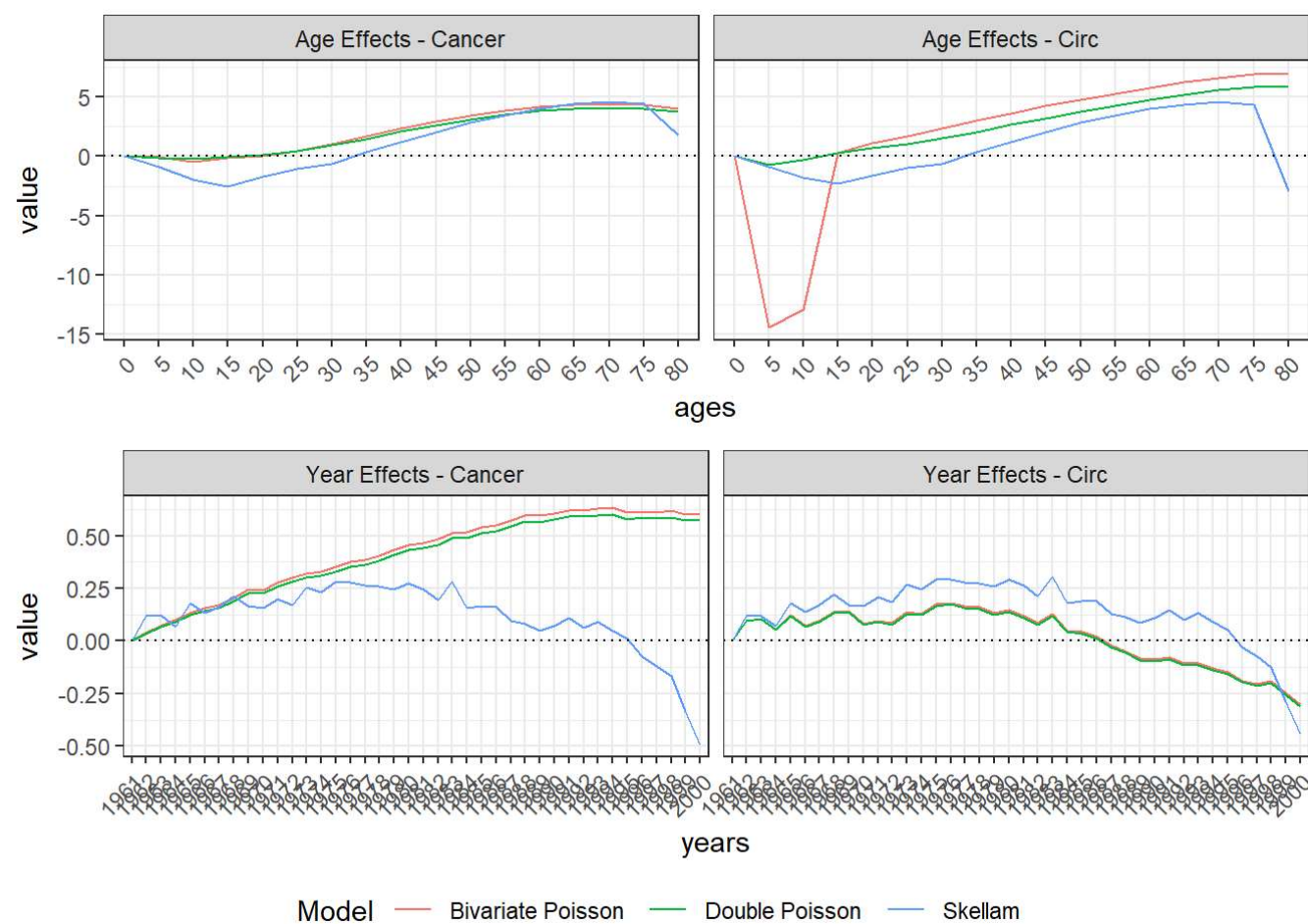
3 baseline period: 1961-2000 (40 years) 1971-2000 (30 years) 1981-2000 (20 years)

15 years of forecasting window: 2001-2015

Analysis for All-ages:

PERIOD 1: Baseline 1961-2000, forecasting 2001-2015

Visualization estimated Age-Period Effects



Goodness-of-fit:

##	BIC	AIC	AICc
## Skellam	9884.399	9377.925	9422.566
## Double Poisson	299456.571	298950.097	298994.739
## Bivariate Poisson	292884.116	292294.793	292340.313

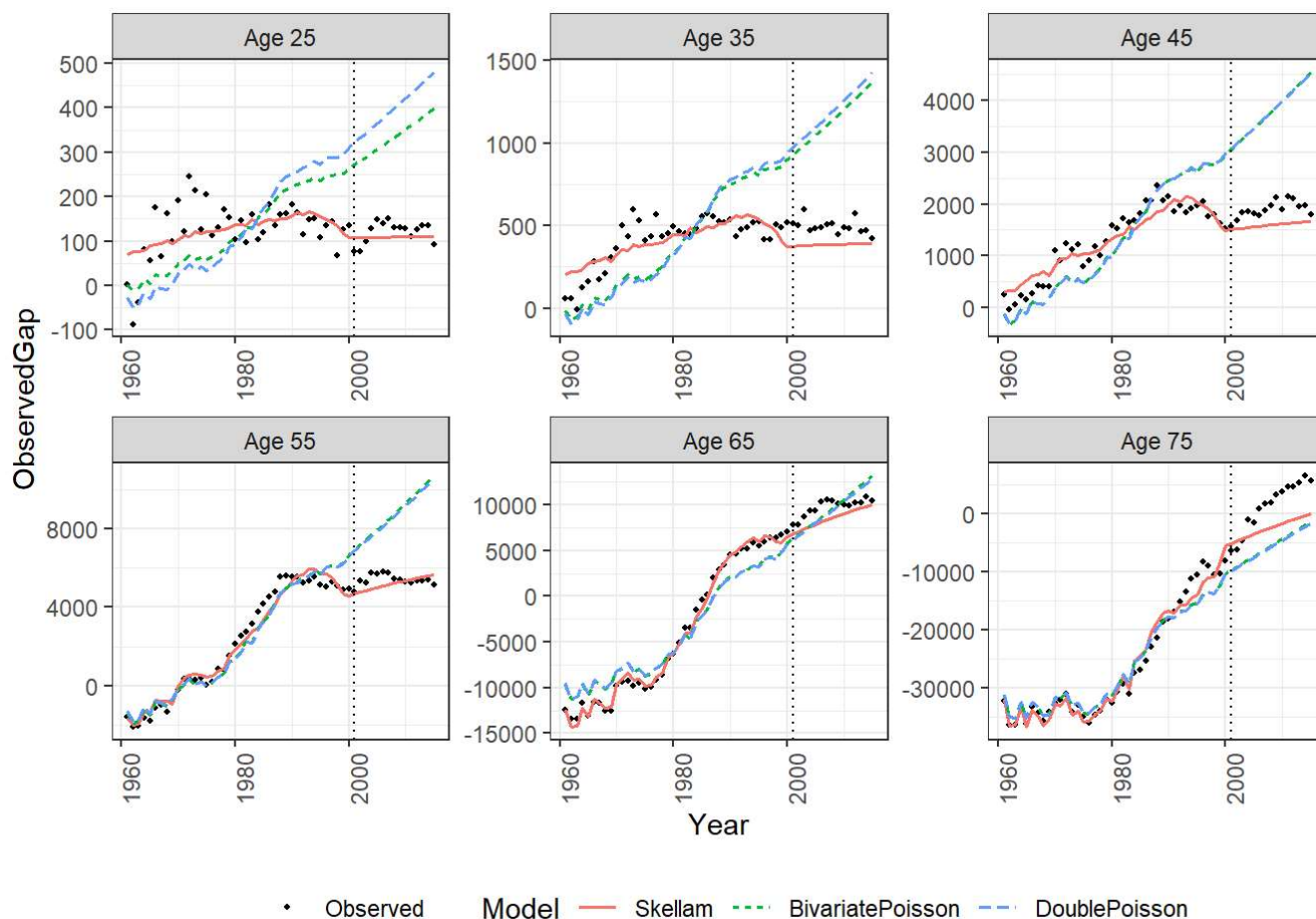
Accuracy in-sample fitting:

##		RMSE	MAE	MAPE
##	Skellam	466.7923	235.4886	0.8858529
##	Double Poisson	1557.1810	813.0671	0.9761192
##	Bivariate Poisson	1539.0191	791.4998	0.8517086

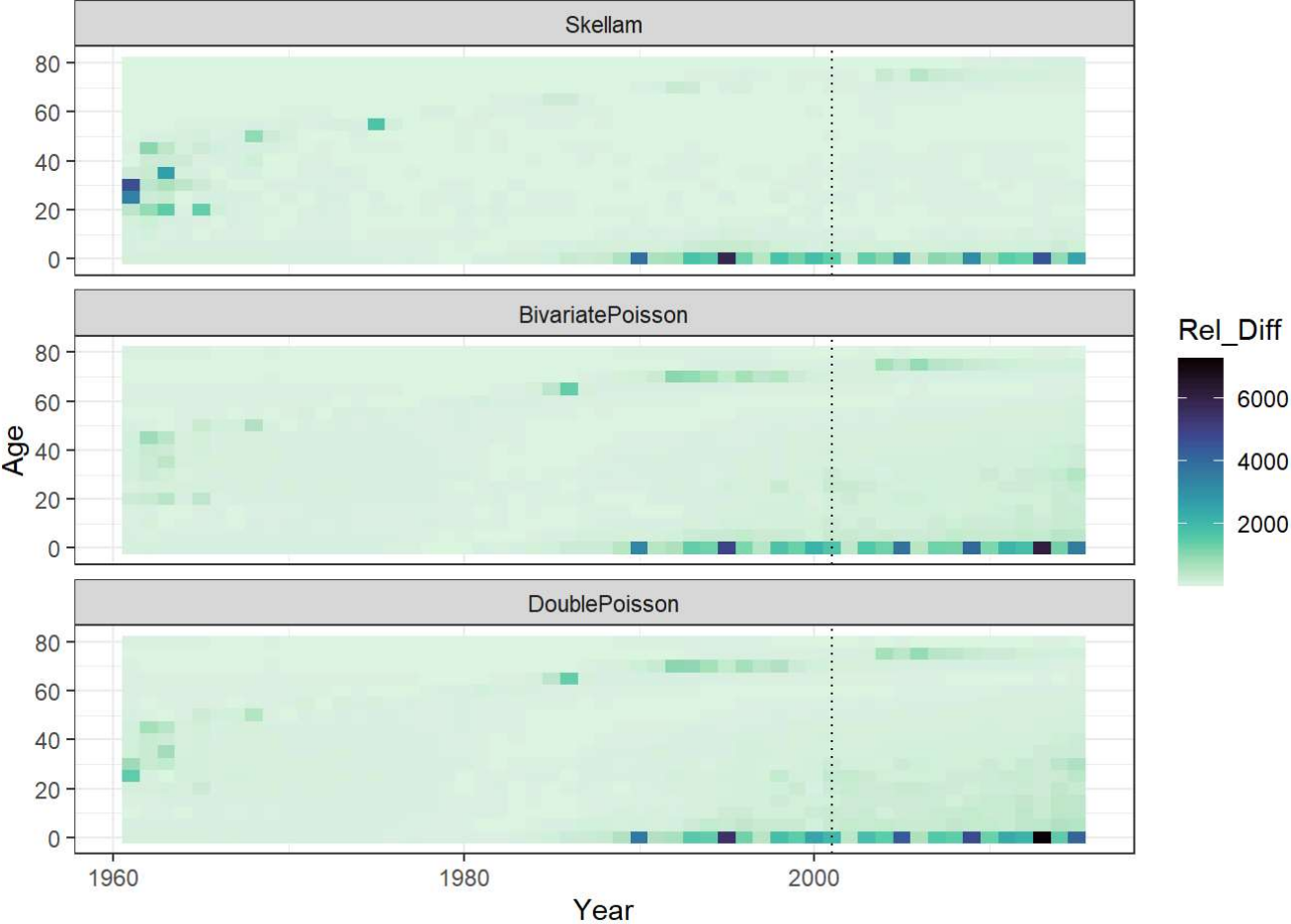
Accuracy out-of-sample fitting:

##		RMSE	MAE	MAPE
##	Skellam	1624.305	778.7637	1.257075
##	Double Poisson	2627.327	1700.5404	2.947077
##	Bivariate Poisson	2593.861	1666.4443	2.487281

Plot of fitting and forecasting in-sample (till 2000) and out-of-sample (years>2000)



Heat map of absolute relative differences:



PERIOD 2: Baseline 1971-2000, forecasting 2001-2015

Visualization estimated Age-Period Effects:



Goodness-of-fit:

##	BIC	AIC	AICc
## Skellam	7305.393	6915.827	6956.863
## Double Poisson	185354.152	184964.586	185005.622
## Bivariate Poisson	184891.000	184432.737	184474.766

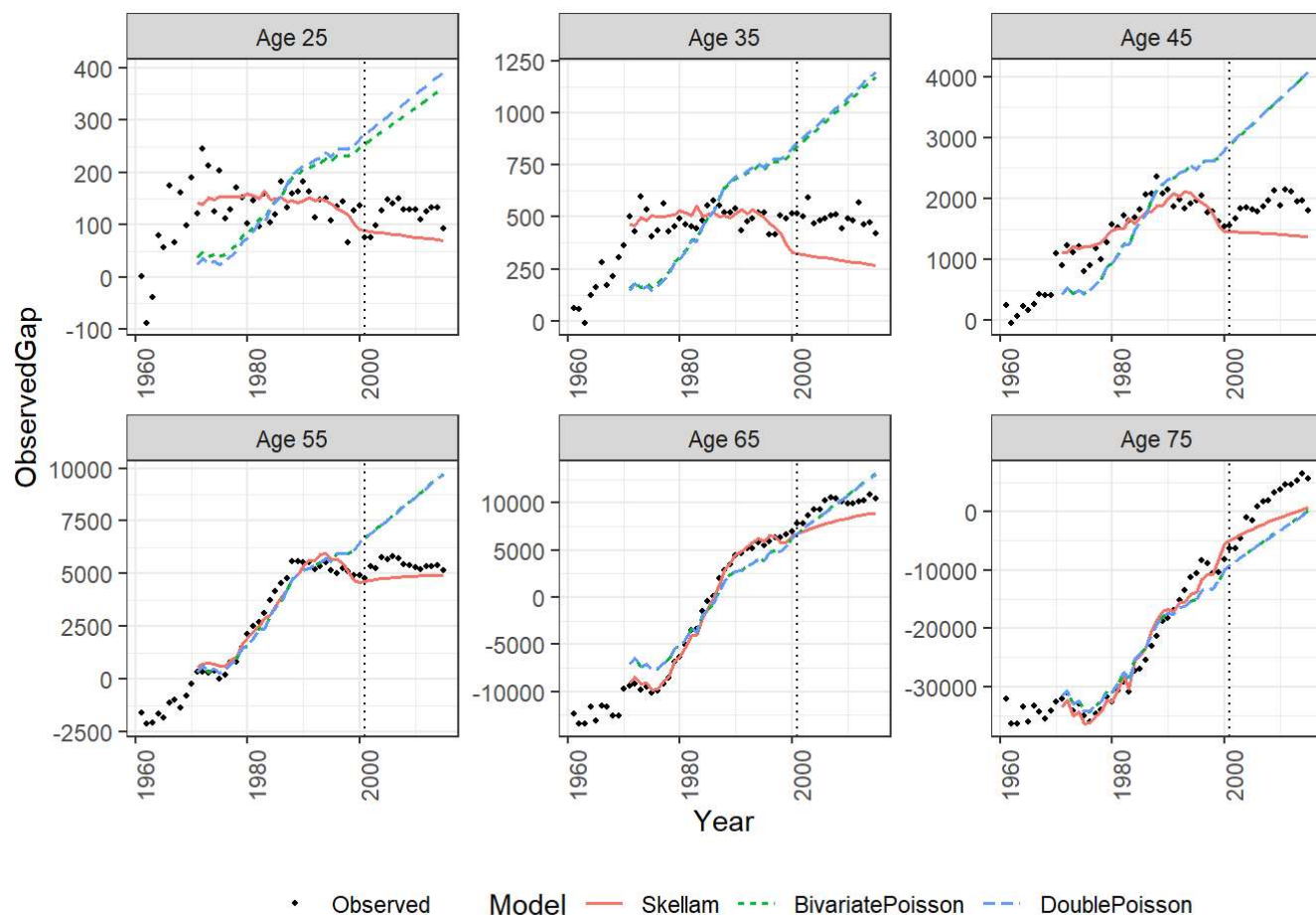
Accuracy in-sample fitting:

##	RMSE	MAE	MAPE
## Skellam	495.352	238.5811	0.5253002
## Double Poisson	1380.381	748.3146	0.7567413
## Bivariate Poisson	1375.315	740.1779	0.7138892

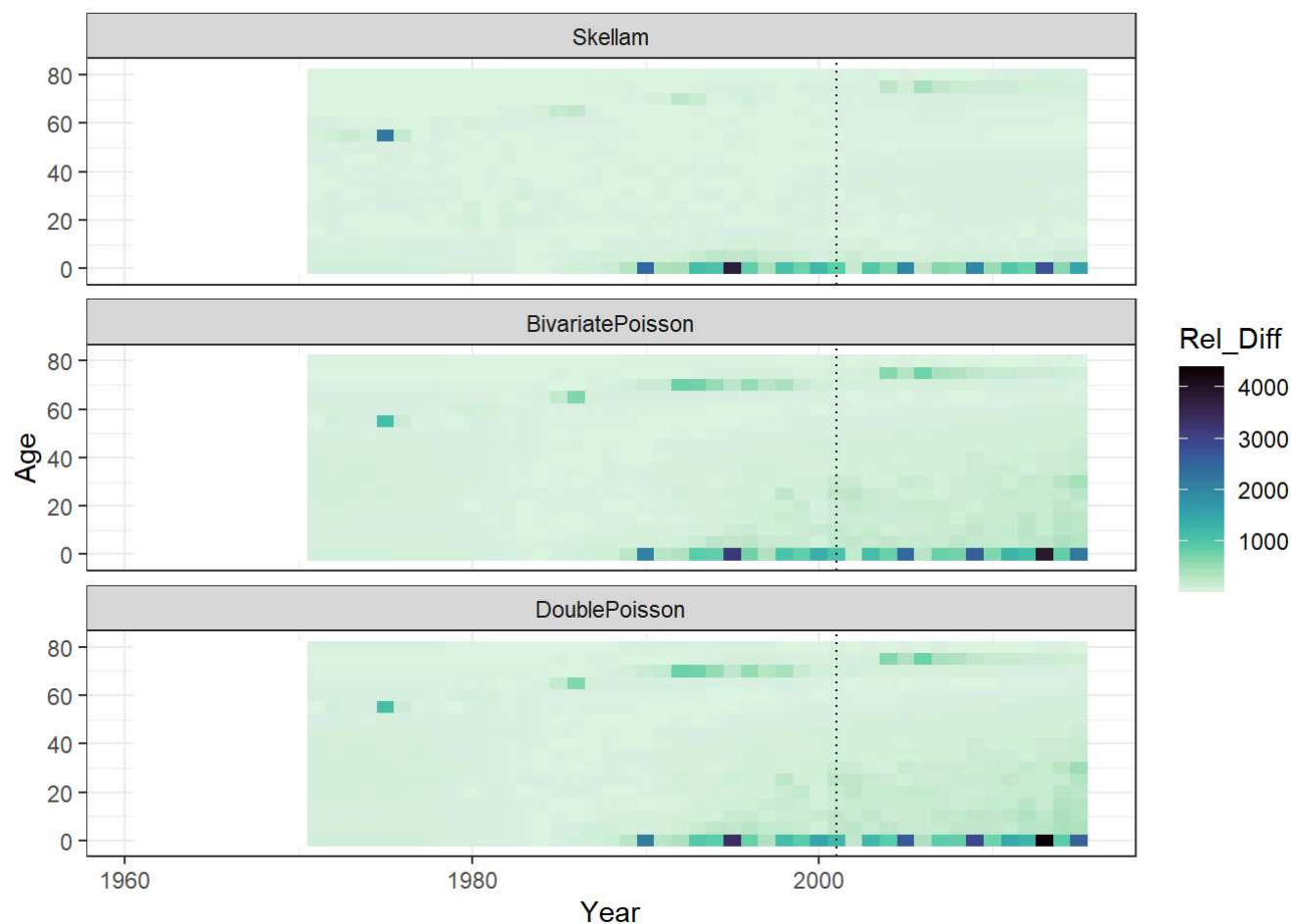
Accuracy out-of-sample fitting:

##	RMSE	MAE	MAPE
## Skellam	1475.539	803.0945	0.9177567
## Double Poisson	2194.914	1413.1237	2.0532792
## Bivariate Poisson	2182.502	1398.9320	1.8660085

Plot of fitting and forecasting in-sample (till 2000) and out-of-sample (years>2000):

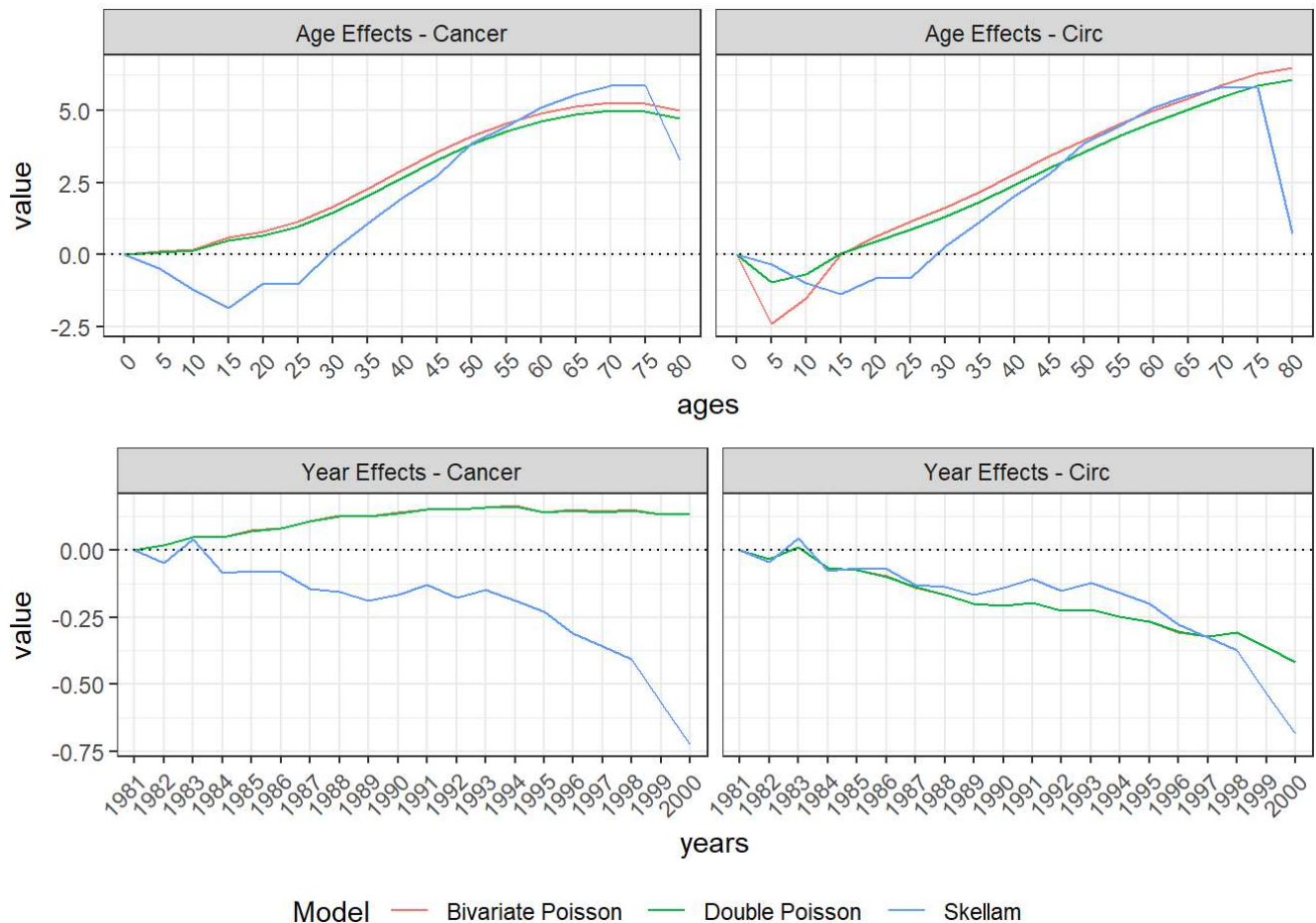


Heat map of absolute relative differences:



PERIOD 3: Baseline 1981-2000, forecasting 2001-2015

Visualization estimated Age-Period Effects:



Goodness-of-fit:

##	BIC	AIC	AICc
## Skellam	4765.957	4490.273	4529.644
## Double Poisson	91332.696	91057.012	91096.383
## Bivariate Poisson	91316.537	90986.424	91027.040

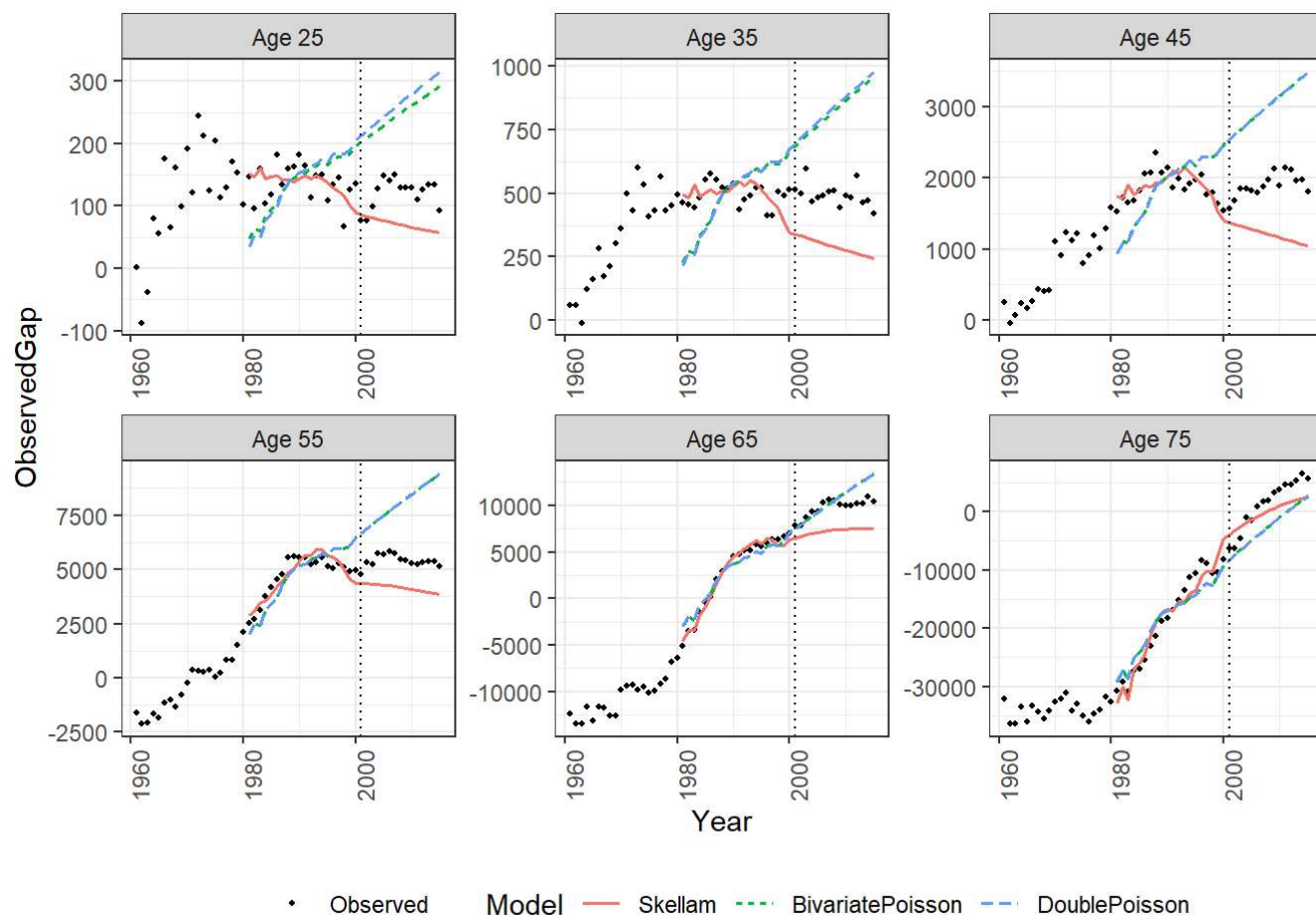
Accuracy in-sample fitting:

##	RMSE	MAE	MAPE
## Skellam	520.9246	233.3630	0.2867103
## Double Poisson	1124.2138	589.5854	0.4698897
## Bivariate Poisson	1122.0751	585.5959	0.4424464

Accuracy out-of-sample fitting:

##	RMSE	MAE	MAPE
## Skellam	1406.802	865.6364	0.4242217
## Double Poisson	1691.549	1098.8097	1.1802799
## Bivariate Poisson	1687.158	1090.1062	1.0393735

Plot of fitting and forecasting in-sample (till 2000) and out-of-sample (years>2000):



Heat map of absolute relative differences:

