

Gambia

```
## [1] "Census Females"

## # A tibble: 86 x 4
##   age `1973` `1983` `1993`
##   <dbl> <dbl> <dbl> <dbl>
## 1     0 10161  8954. 14438.
## 2     1  8901. 10514. 14418.
## 3     2  8058. 11886. 16911.
## 4     3  7548. 12294. 17600.
## 5     4  7194. 12659. 18292.
## 6     5  6938. 12702. 18550.
## 7     6  6734. 12179. 17794.
## 8     7  6541. 11352. 16837.
## 9     8  6350. 10368. 15721.
## 10    9  6169.  9343. 14581.
## # ... with 76 more rows

## [1] "Census Females 5-year"

## # A tibble: 18 x 1
##   age
##   <dbl>
## 1     0
## 2     5
## 3    10
## 4    15
## 5    20
## 6    25
## 7    30
## 8    35
## 9    40
## 10   45
## 11   50
## 12   55
## 13   60
## 14   65
## 15   70
## 16   75
## 17   80
## 18   85

## [1] "Census Males"

## # A tibble: 86 x 4
##   age `1973` `1983` `1993`
##   <dbl> <dbl> <dbl> <dbl>
## 1     0 10239  9379. 15106.
## 2     1  8856. 10807. 15019.
## 3     2  7961. 11961. 17261.
## 4     3  7434. 12184. 17786.
## 5     4  7054. 12479. 18368.
## 6     5  6773. 12532. 18555.
```

```
## 7      6 6566. 12055. 17795.
## 8      7 6383. 11387. 16934.
## 9      8 6202 10614. 15939.
## 10     9 6031. 9779. 14915.
## # ... with 76 more rows
```

```
## [1] "Census Males 5-year"
```

```
## # A tibble: 18 x 1
```

```
##   age
```

```
##   <dbl>
```

```
## 1     0
```

```
## 2     5
```

```
## 3    10
```

```
## 4    15
```

```
## 5    20
```

```
## 6    25
```

```
## 7    30
```

```
## 8    35
```

```
## 9    40
```

```
## 10   45
```

```
## 11   50
```

```
## 12   55
```

```
## 13   60
```

```
## 14   65
```

```
## 15   70
```

```
## 16   75
```

```
## 17   80
```

```
## 18   85
```

Thiele log-Normal Hump Spline

```
## [1] "relative convergence (4)"
```

##	log_tau2_logpop	log_tau2_logpop	log_tau2_logpop	log_tau2_logpop
##	3.80595737	4.95839373	3.66441841	4.36006146
##	log_lambda_fx	log_lambda_gx	log_dispersion	log_dispersion
##	4.17072074	8.86895850	-0.15577507	-0.08385928
##	log_lambda_tp	tp_slope	tp_params_5	tp_params_10
##	3.24599076	-0.06988313	0.15744226	0.43880744
##	log_lambda_phi	log_lambda_psi	log_lambda_A	log_lambda_B
##	12.61105660	12.60840113	12.56701238	11.75084298
##	log_lambda_lambda	log_lambda_delta	log_lambda_epsilon	
##	5.92626472	8.66338022	4.08773520	

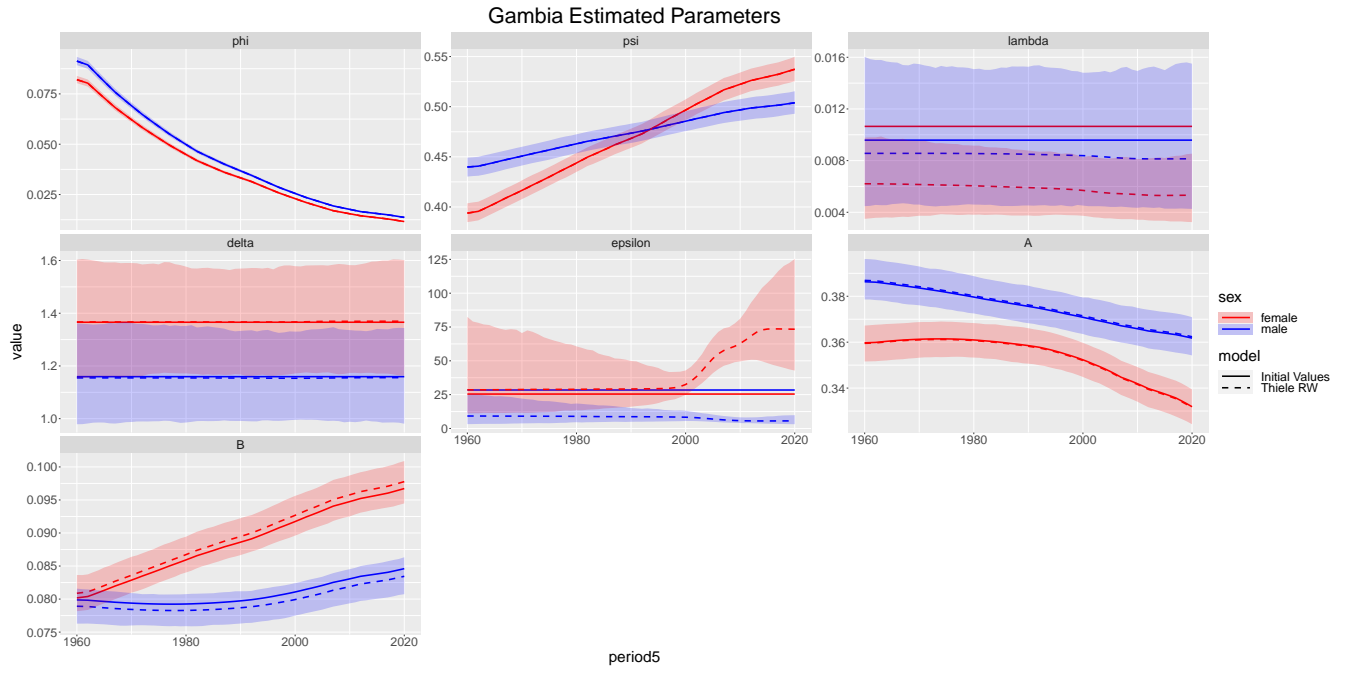


Figure 1: Estimated parameters

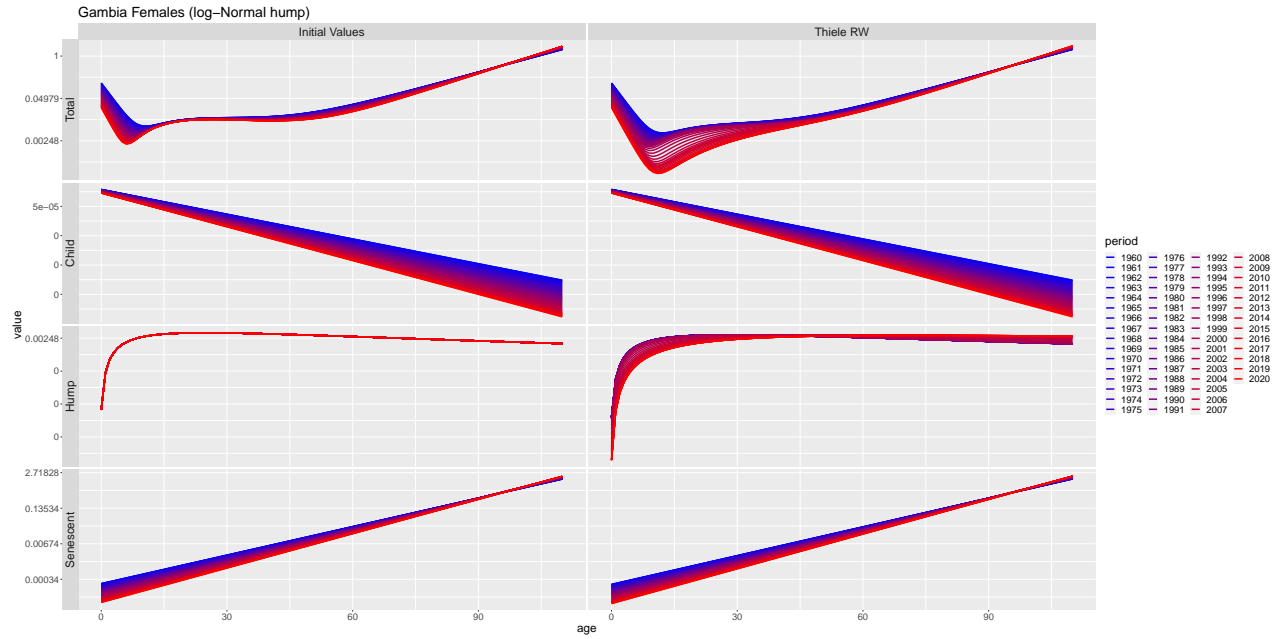


Figure 2: Thiele Decomposed

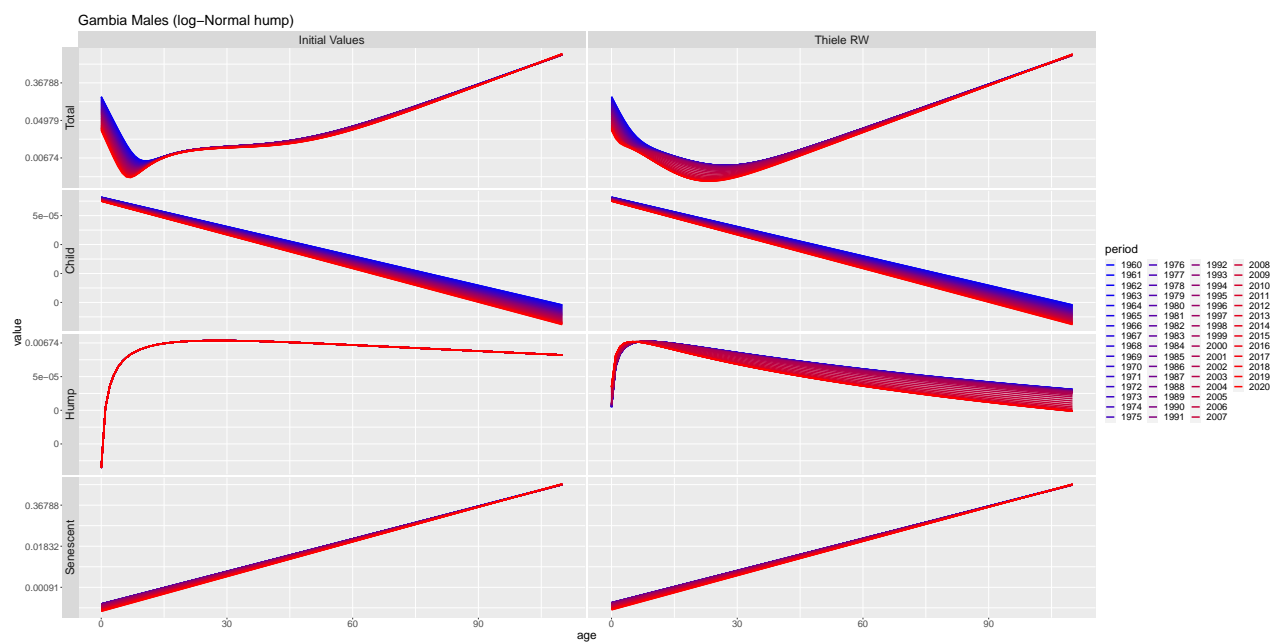


Figure 3: Thiele Decomposed

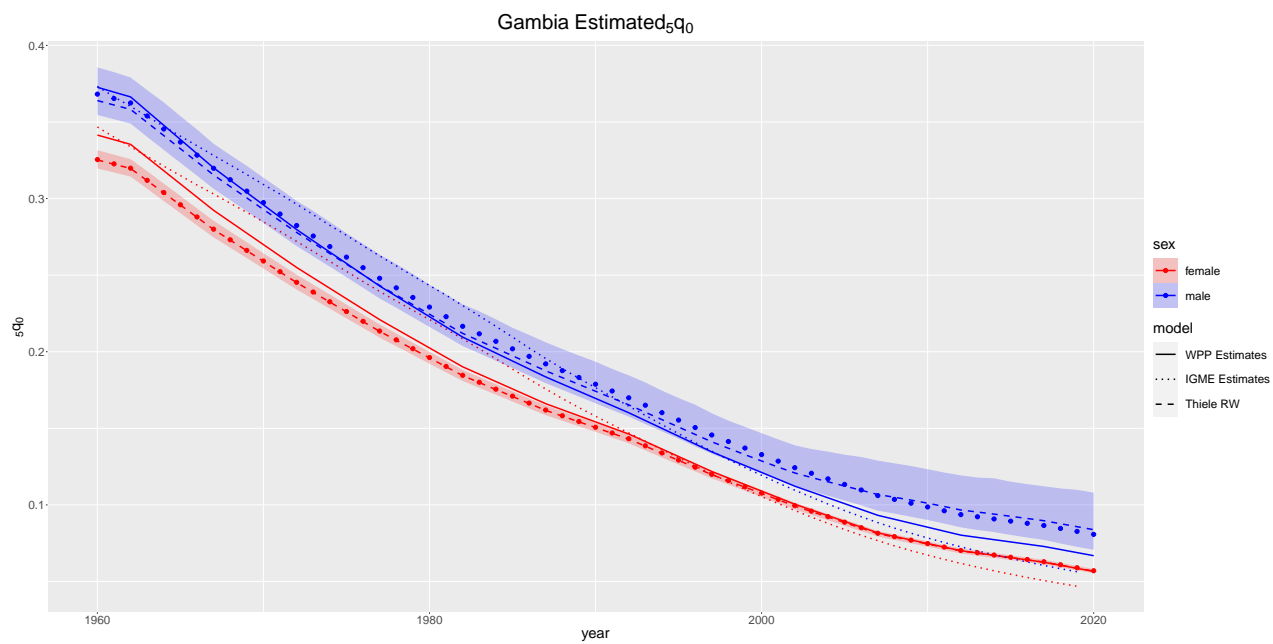


Figure 4: Estimated $5q_0$

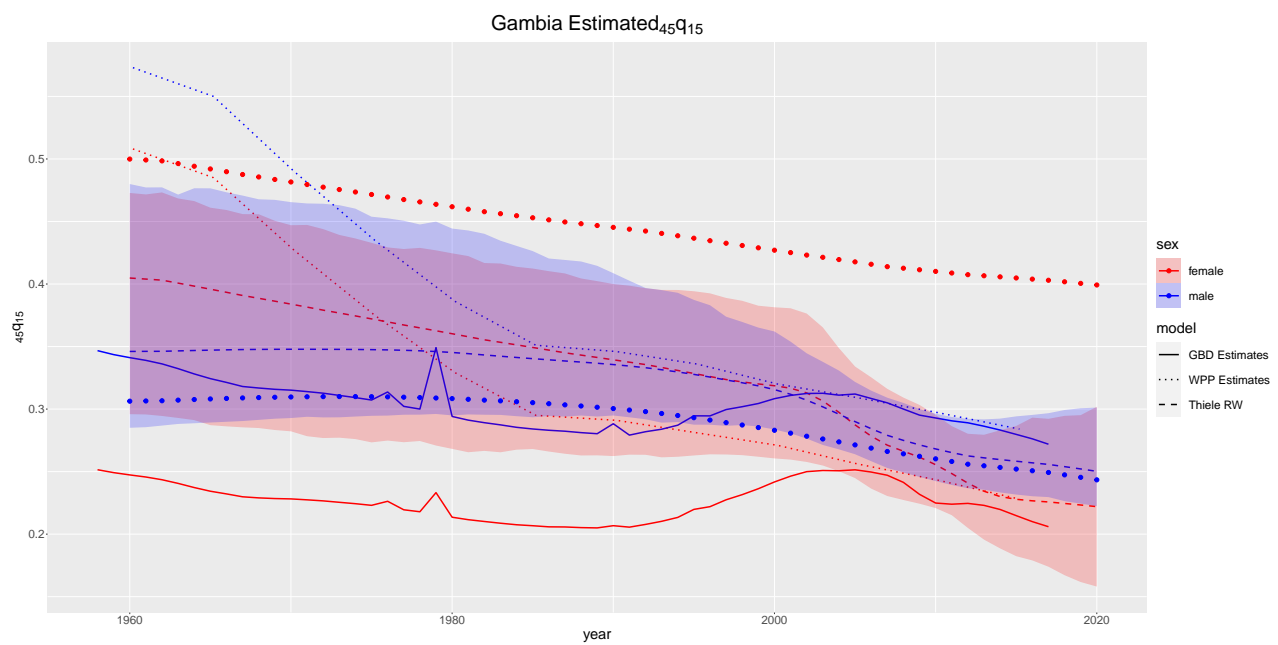


Figure 5: Estimated $_{45}q_{15}$

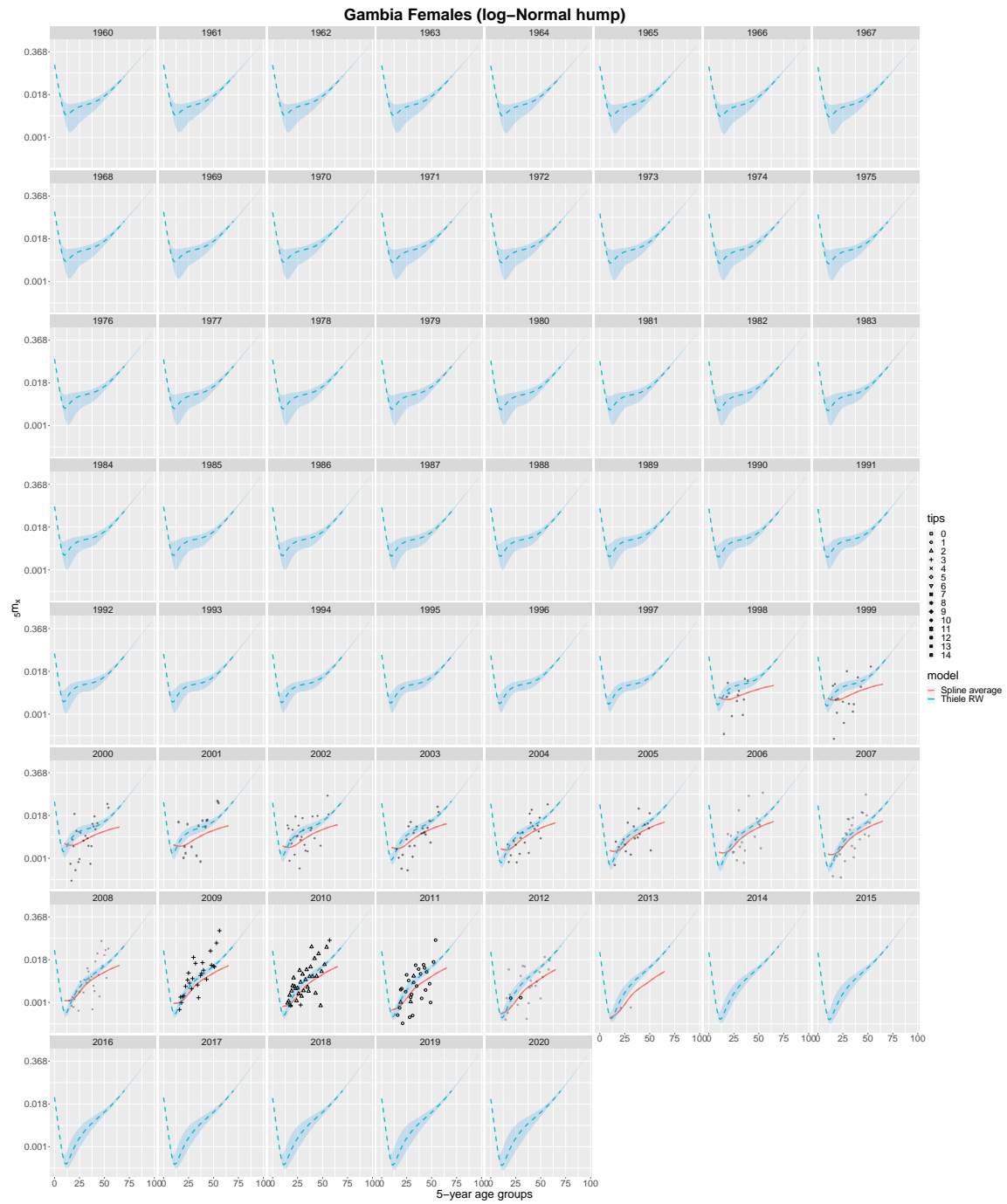


Figure 6: Mortality Schedules

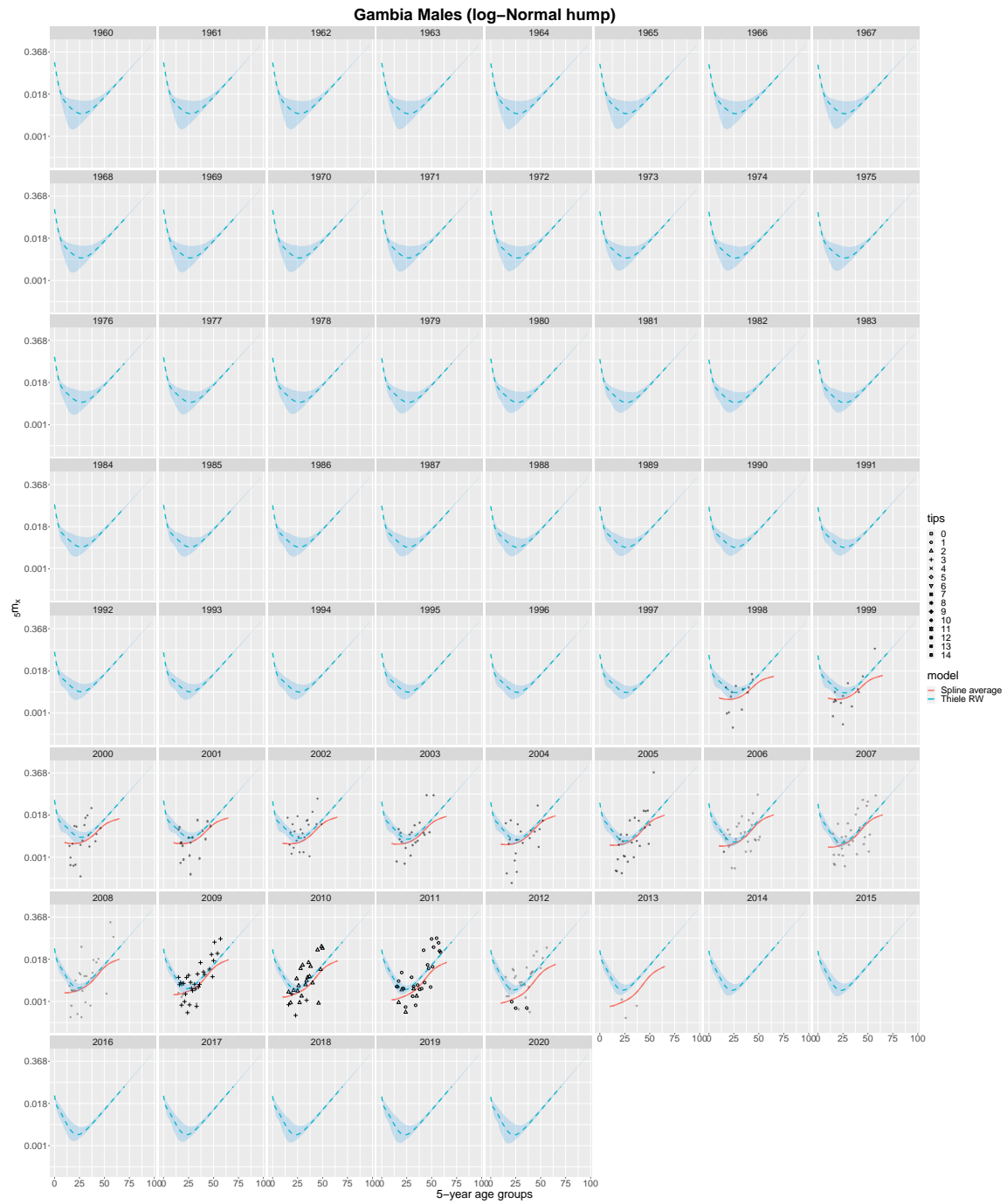


Figure 7: Mortality Schedules

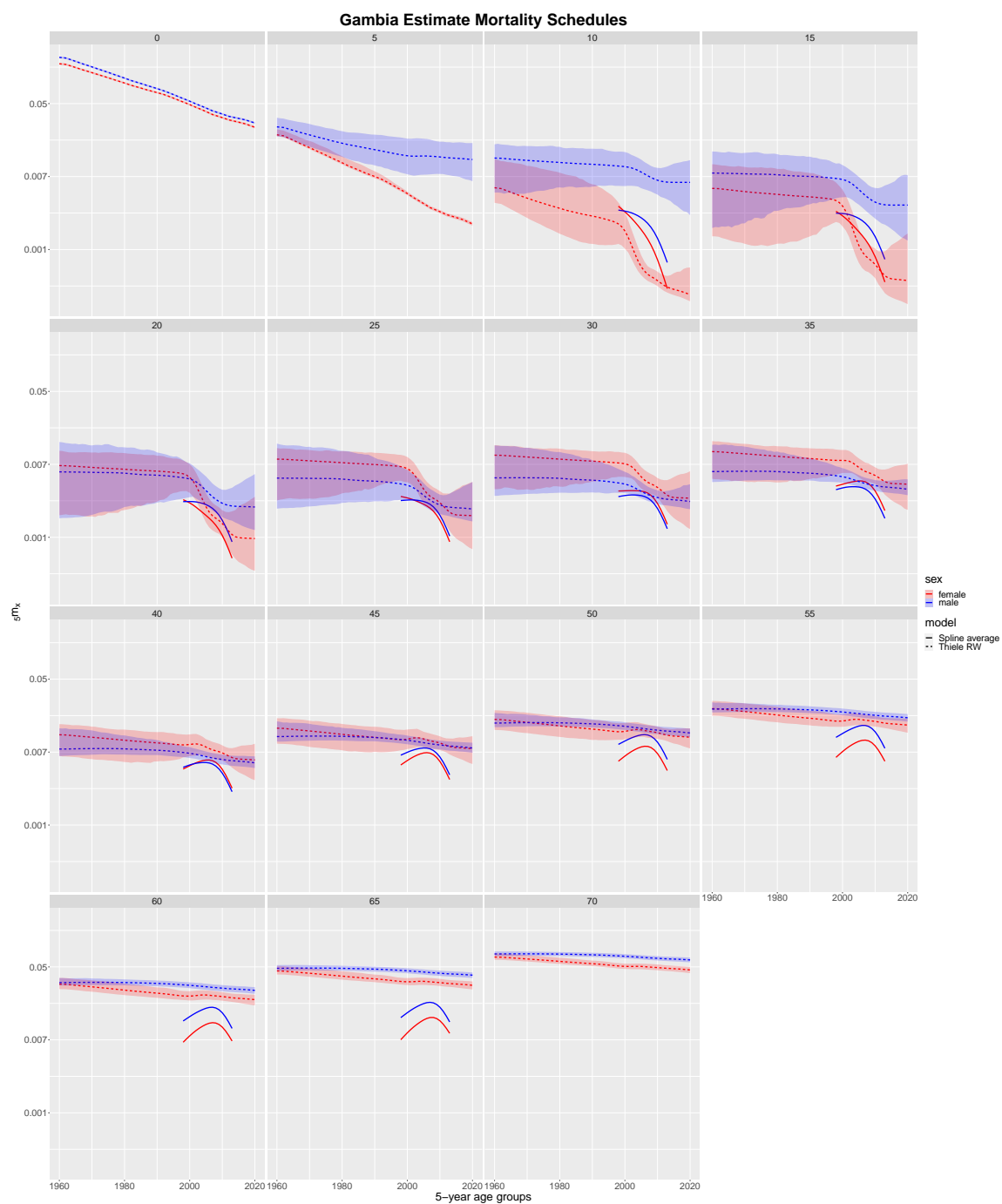


Figure 8: Mortality Schedules

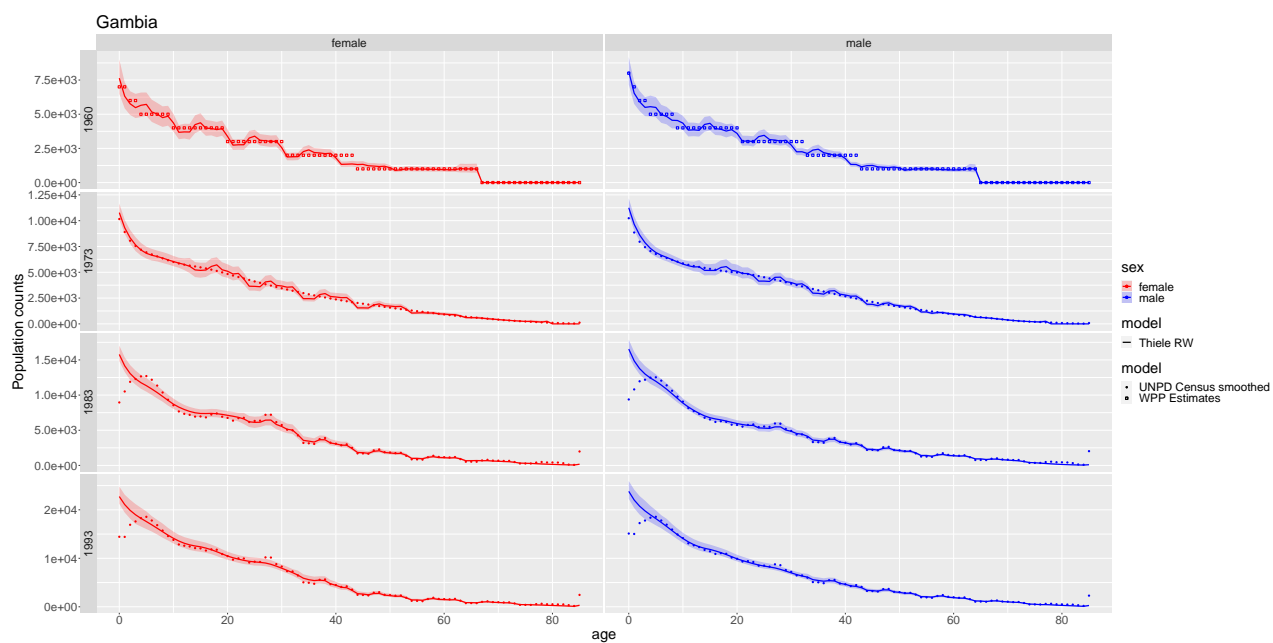


Figure 9: Population

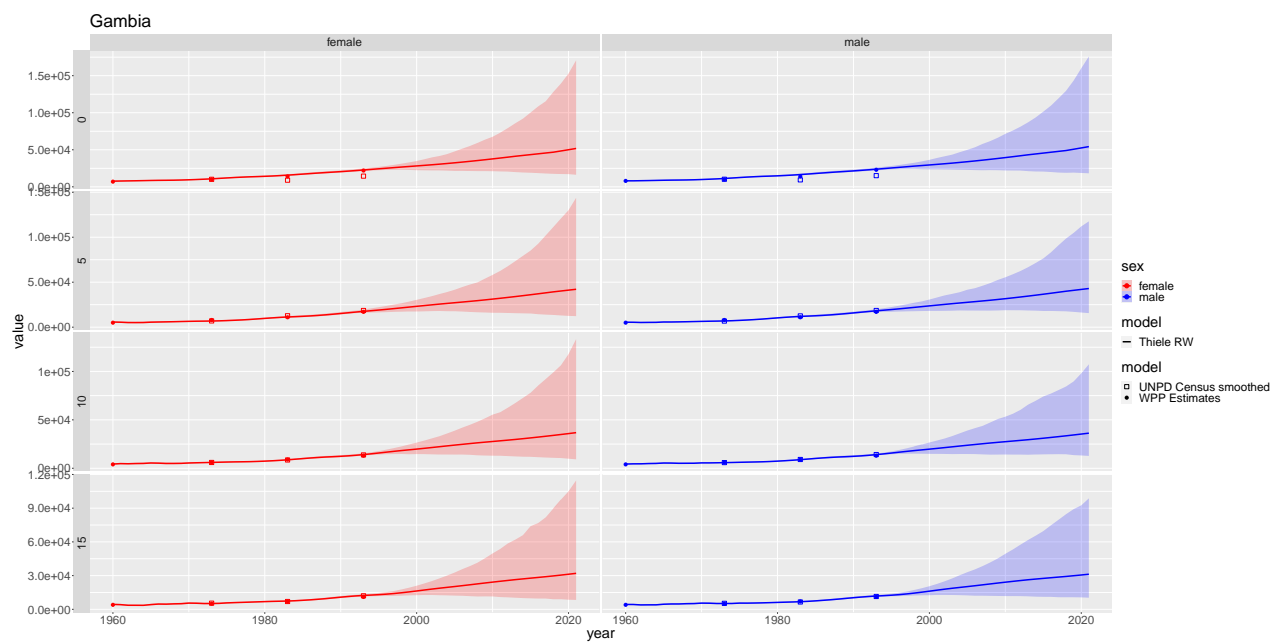


Figure 10: Population

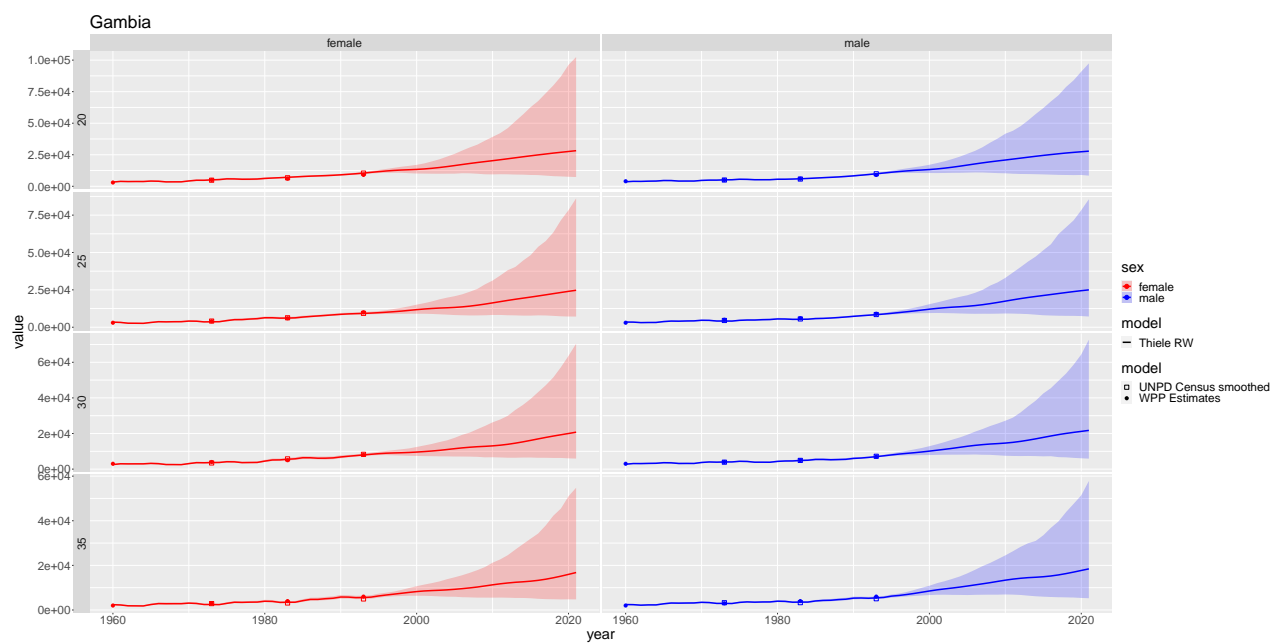


Figure 11: Population

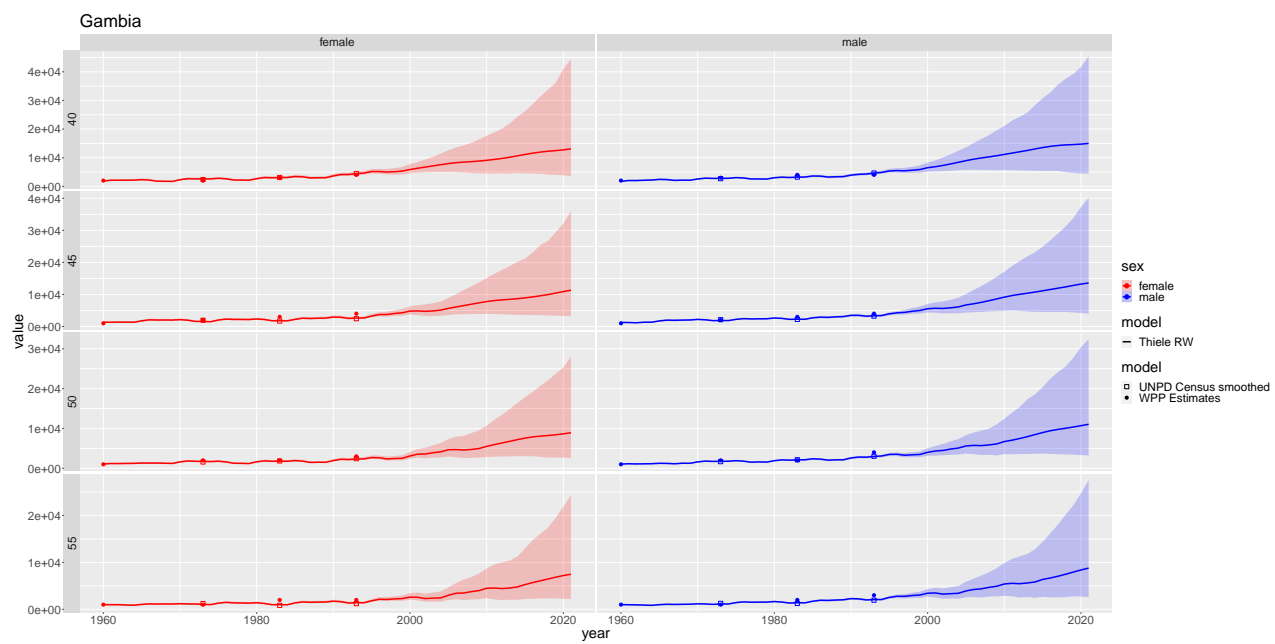


Figure 12: Population

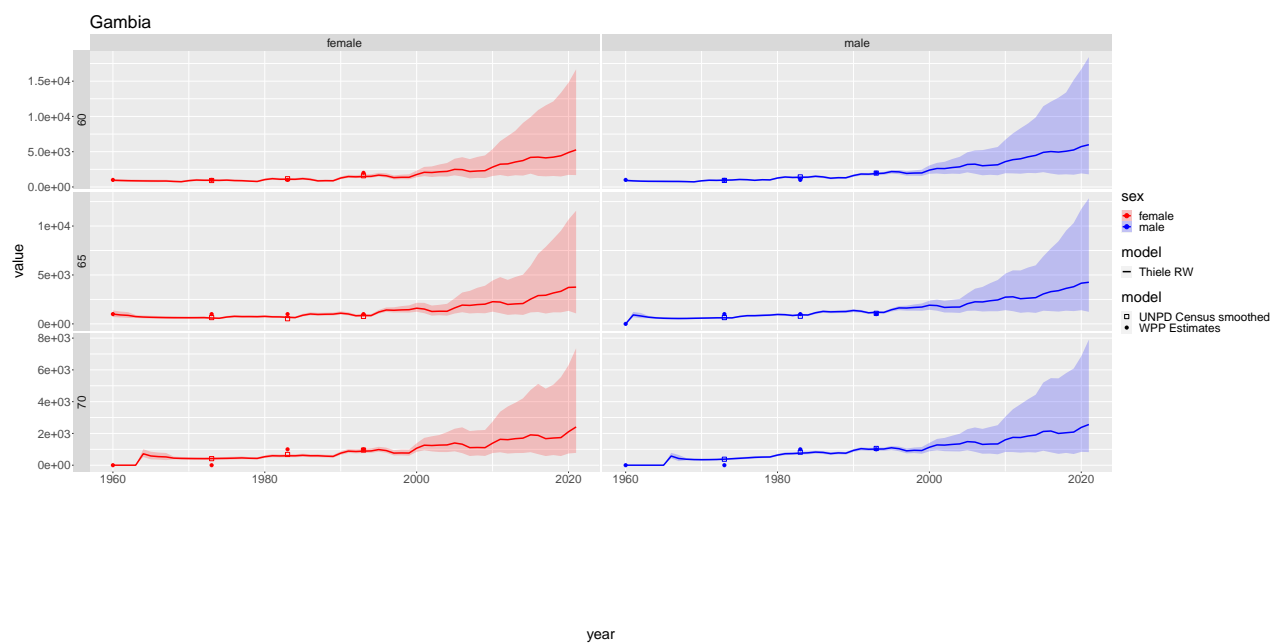


Figure 13: Population

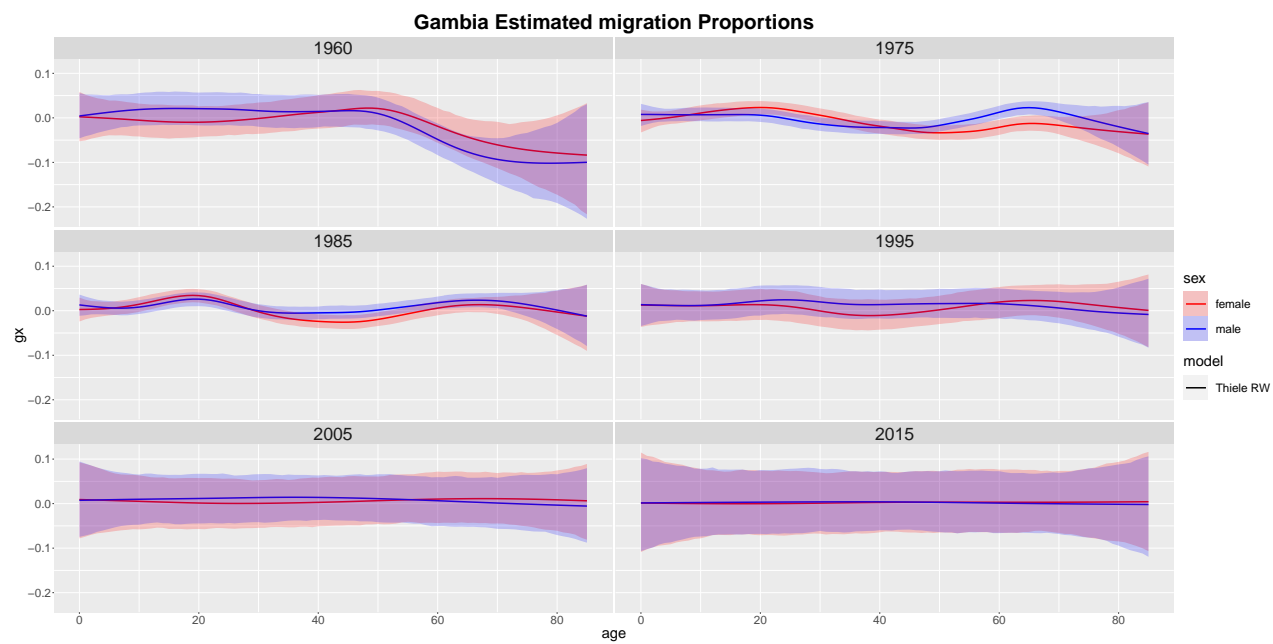


Figure 14: Migration

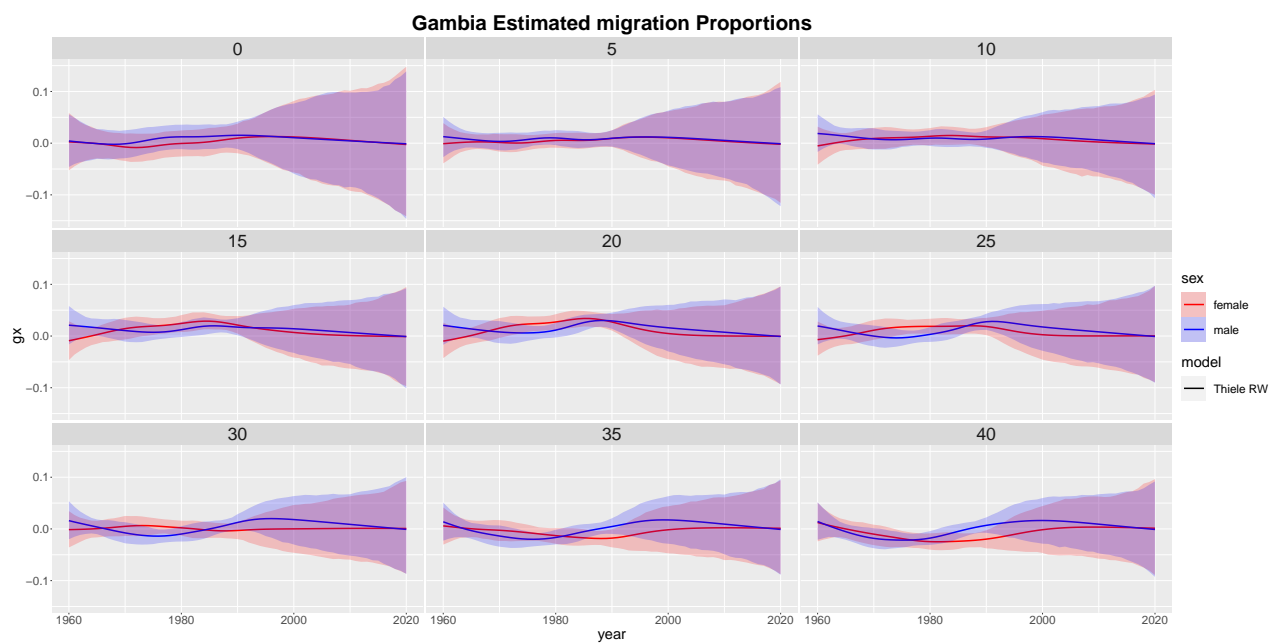


Figure 15: Migration

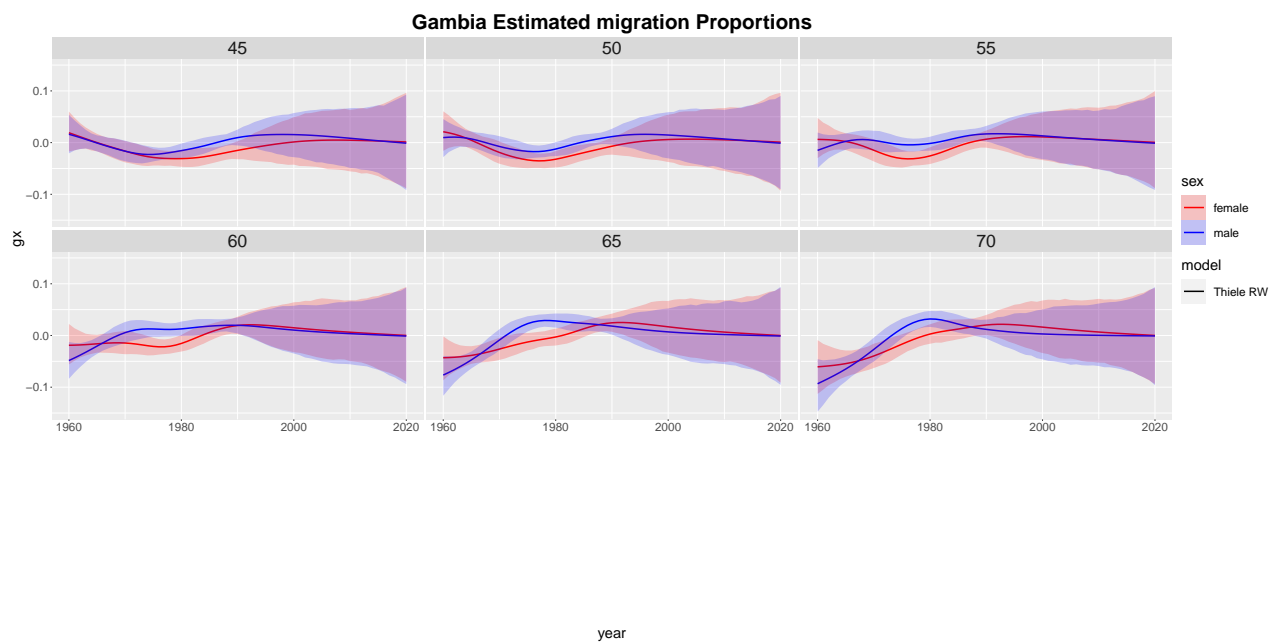


Figure 16: Migration

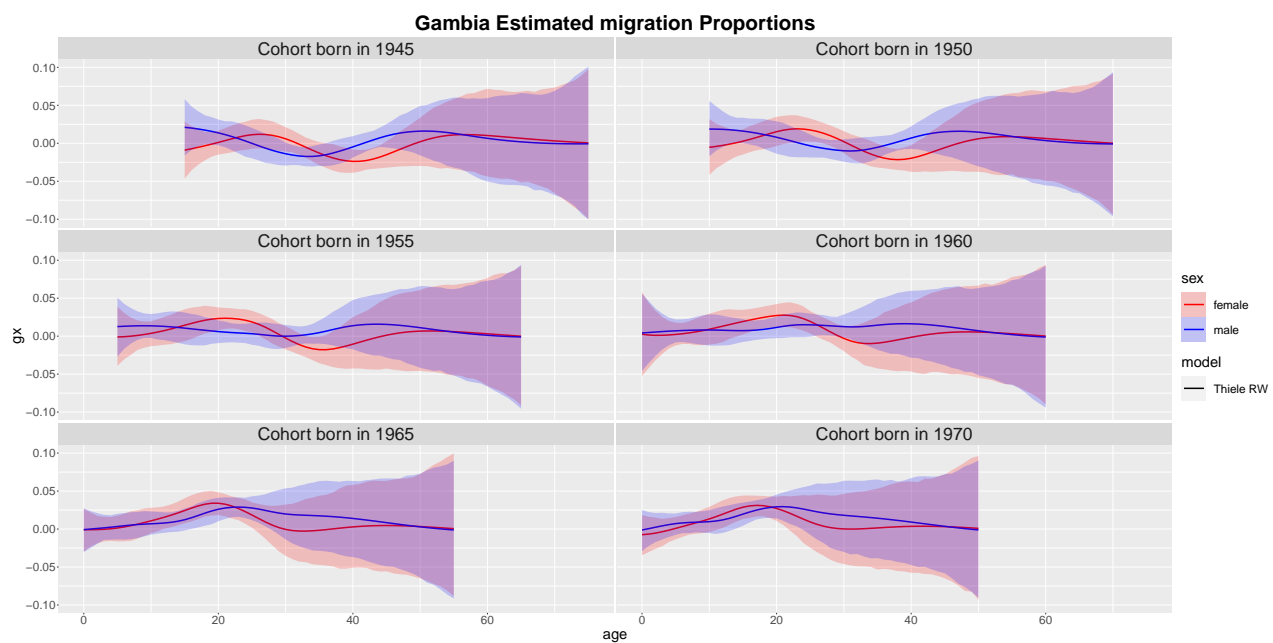


Figure 17: Migration

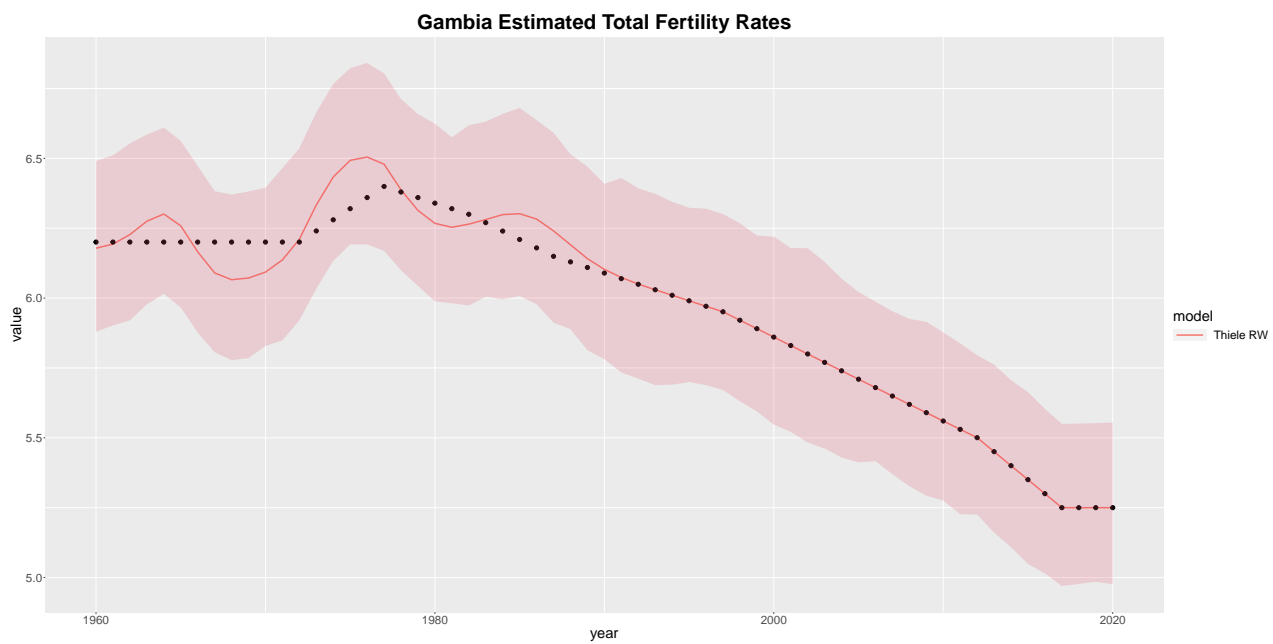


Figure 18: Total Fertility

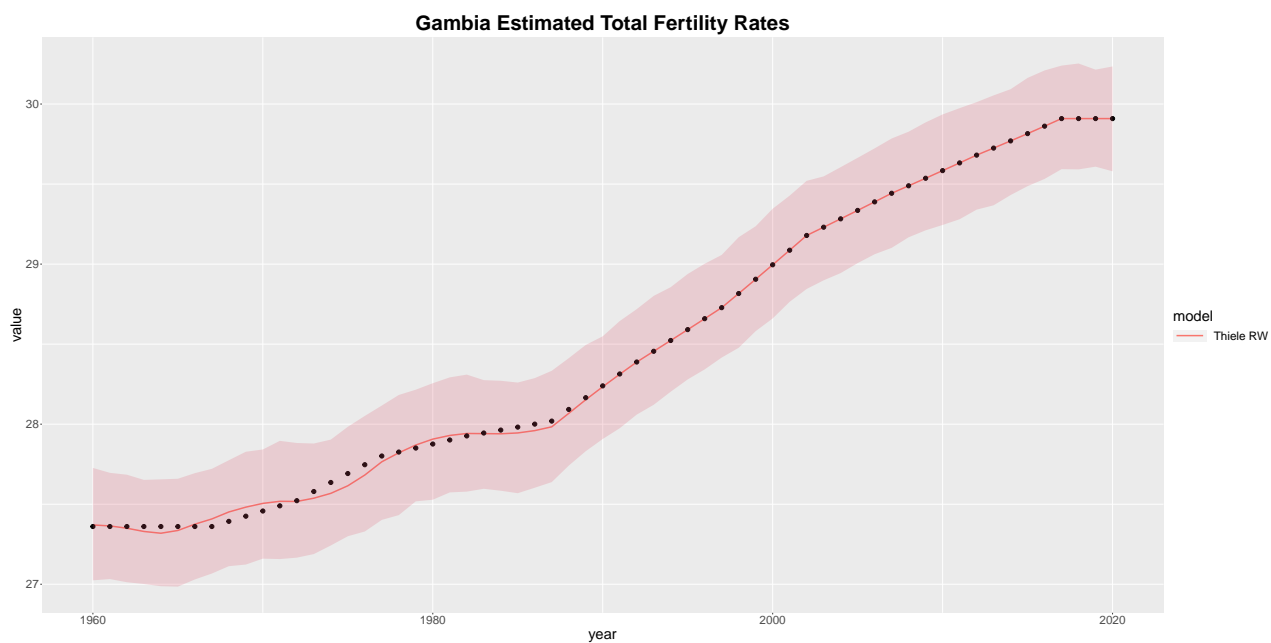


Figure 19: Mean age at births

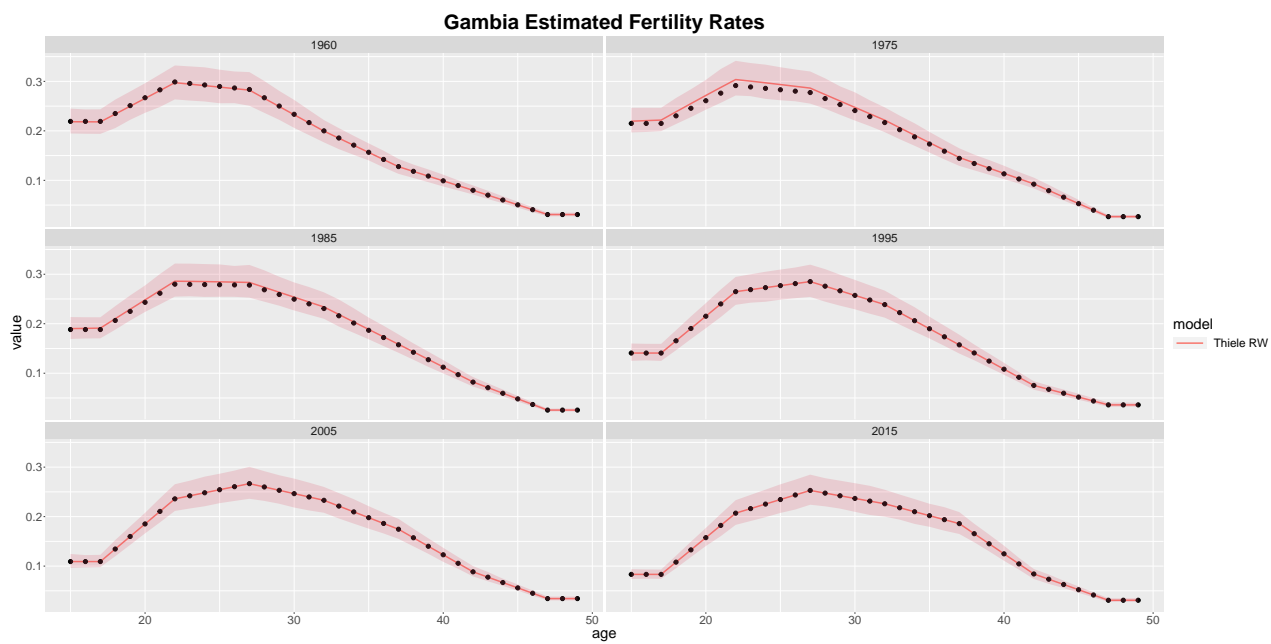


Figure 20: Fertility

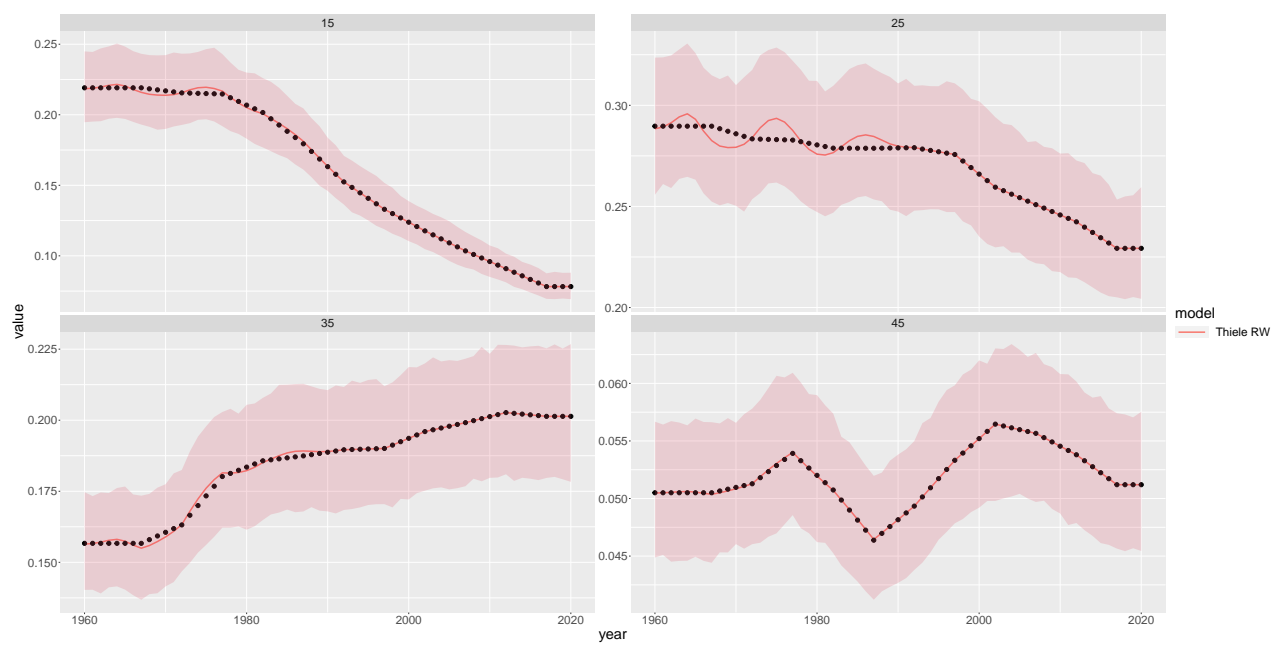


Figure 21: Fertility