Namibia

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

```
## # A tibble: 86 x 4
##      age `1991` `2001` `2011`
##    <dbl>  <dbl>  <dbl>  <dbl>
##  1     0 24851. 23909. 32157
##  2     1 21976. 23883. 28690.
##  3     2 21726. 24603. 28220
##  4     3 21259. 25041. 27500.
##  5     4 21247. 25458. 27077
##  6     5 20771. 25430. 26048.
##  7     6 20065. 25264. 24803.
##  8     7 19362. 25259. 23924.
##  9     8 18677. 25248. 23376.
## 10     9 18357. 25517. 23940.
## # ... 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 `1991` `2001` `2011`
##    <dbl>  <dbl>  <dbl>  <dbl>
##  1     0 24861. 23791. 31976
##  2     1 21883. 24016. 28452.
##  3     2 21600. 24629. 28036.
##  4     3 21144. 24966. 27342.
##  5     4 21149. 25281. 26940.
##  6     5 20679. 25177. 25925.
```

```
##  7     6 19965. 24978. 24627.
##  8     7 19163. 24795. 23618.
##  9     8 18386. 24574. 23047
## 10     9 17972. 24684. 23621.
## # ... 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
##        4.058874406        6.401292602        3.978254017        6.327857708
##      log_lambda_fx      log_lambda_gx     log_dispersion     log_dispersion
##        4.895681515       11.217609360        0.955914512        0.804354663
##      log_lambda_tp           tp_slope        tp_params_5       tp_params_10
##        3.905158799       -0.008213727        0.081934425        0.381826019
##     log_lambda_phi     log_lambda_psi       log_lambda_A       log_lambda_B
##       12.609529733       12.607020829       12.597932231       12.736376117
##  log_lambda_lambda   log_lambda_delta log_lambda_epsilon
##        2.808056461        6.053658746        5.028087401
```

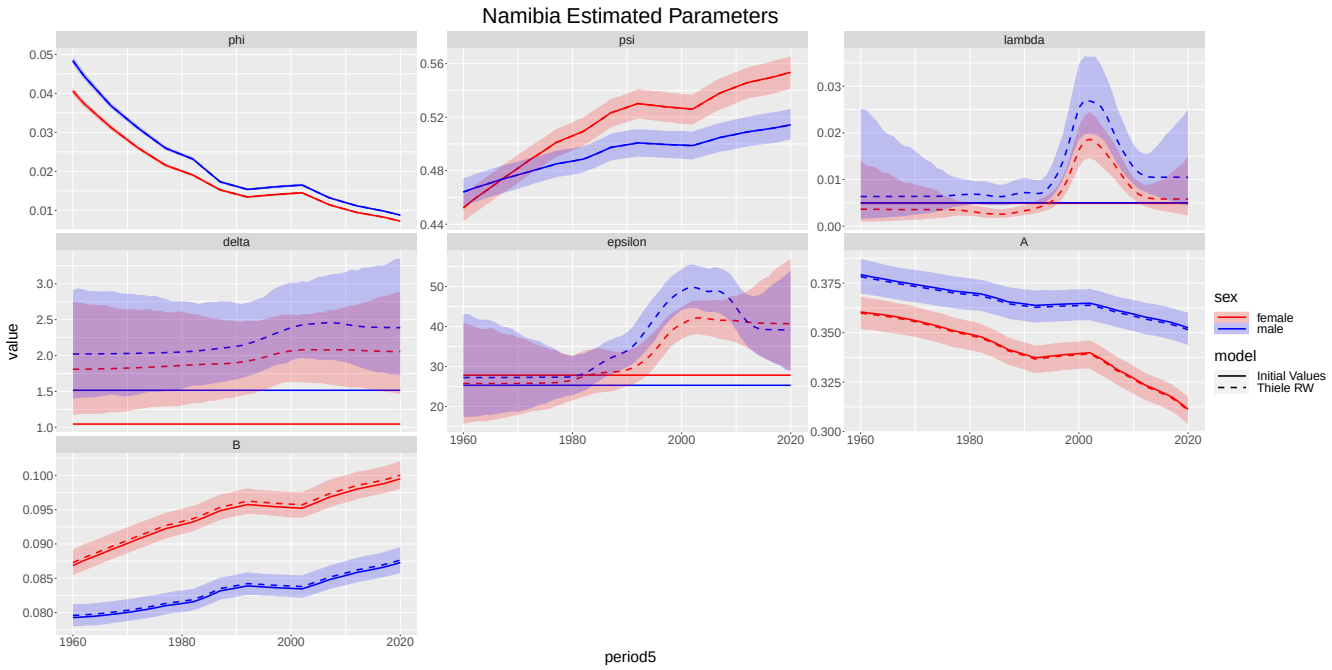

Figure 1: Estimated parameters

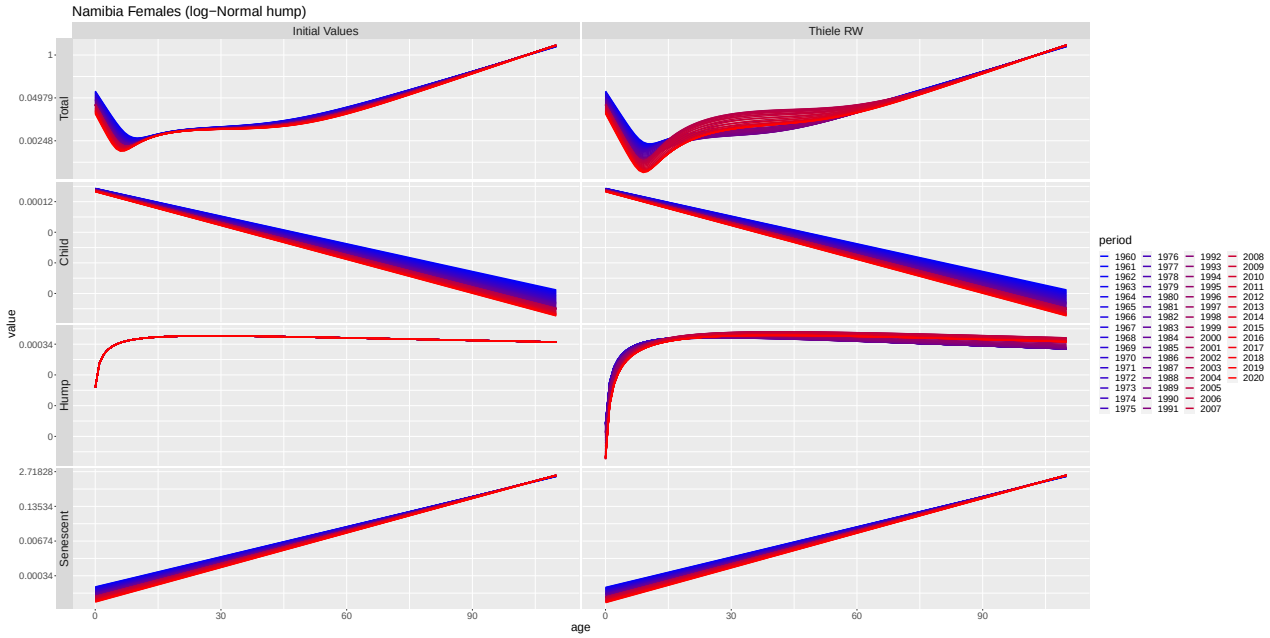

Figure 2: Thiele Decomposed

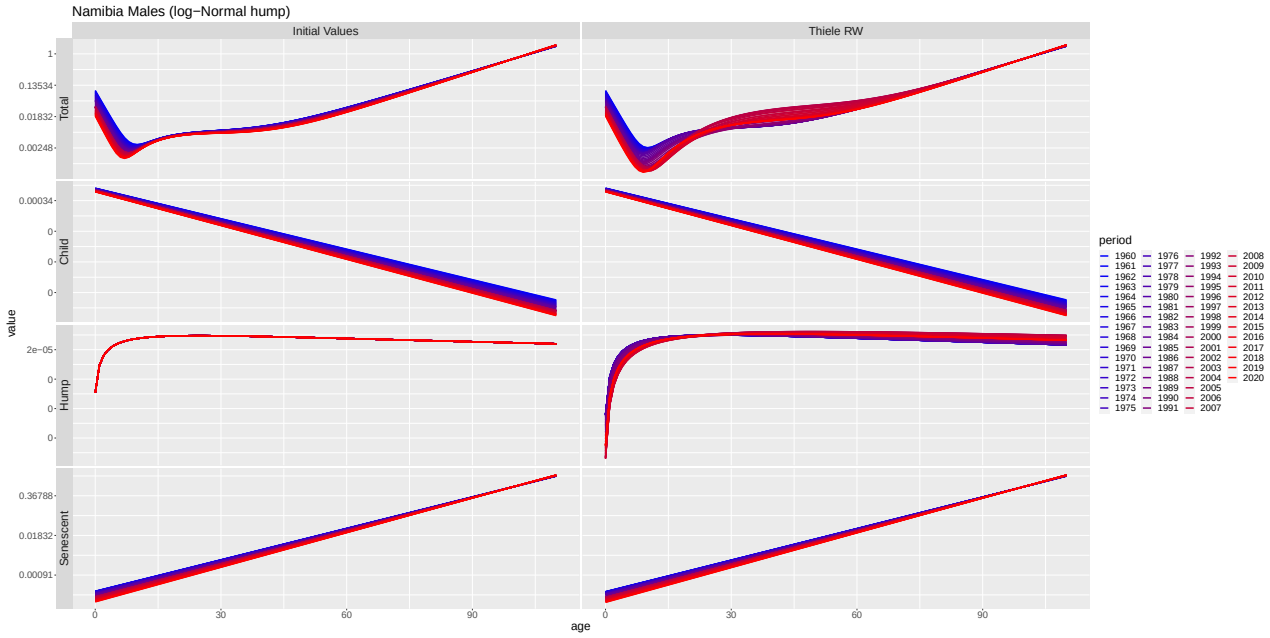

Figure 3: Thiele Decomposed

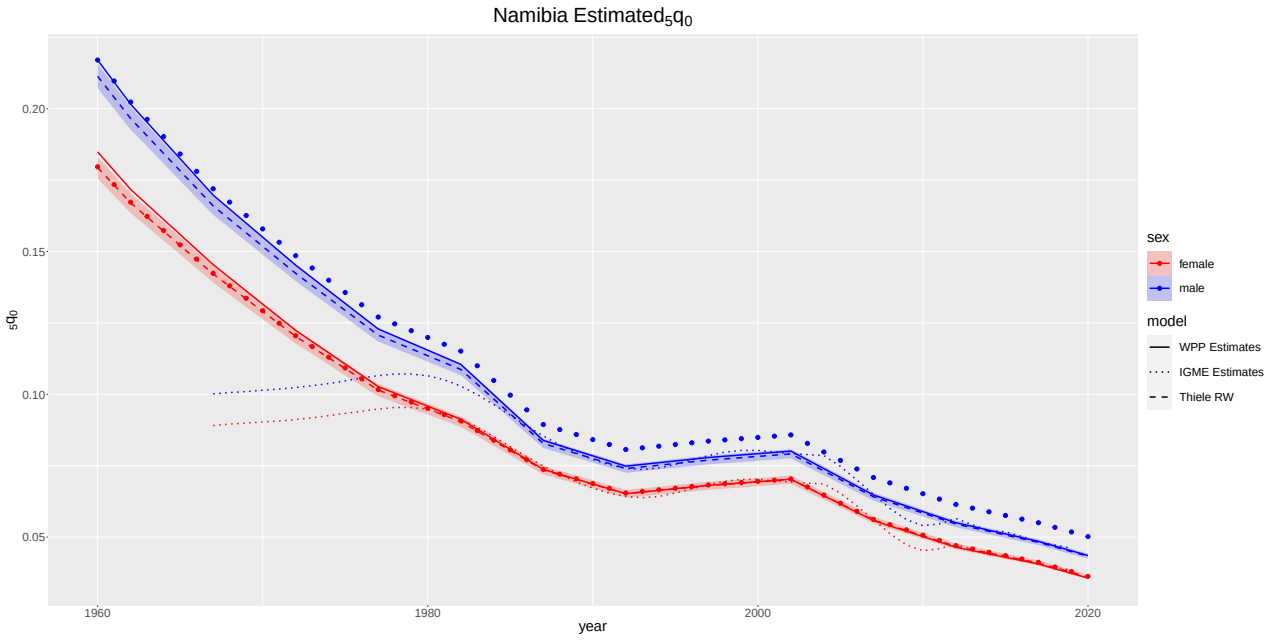

Figure 4: Estimated ${}_5q_0$

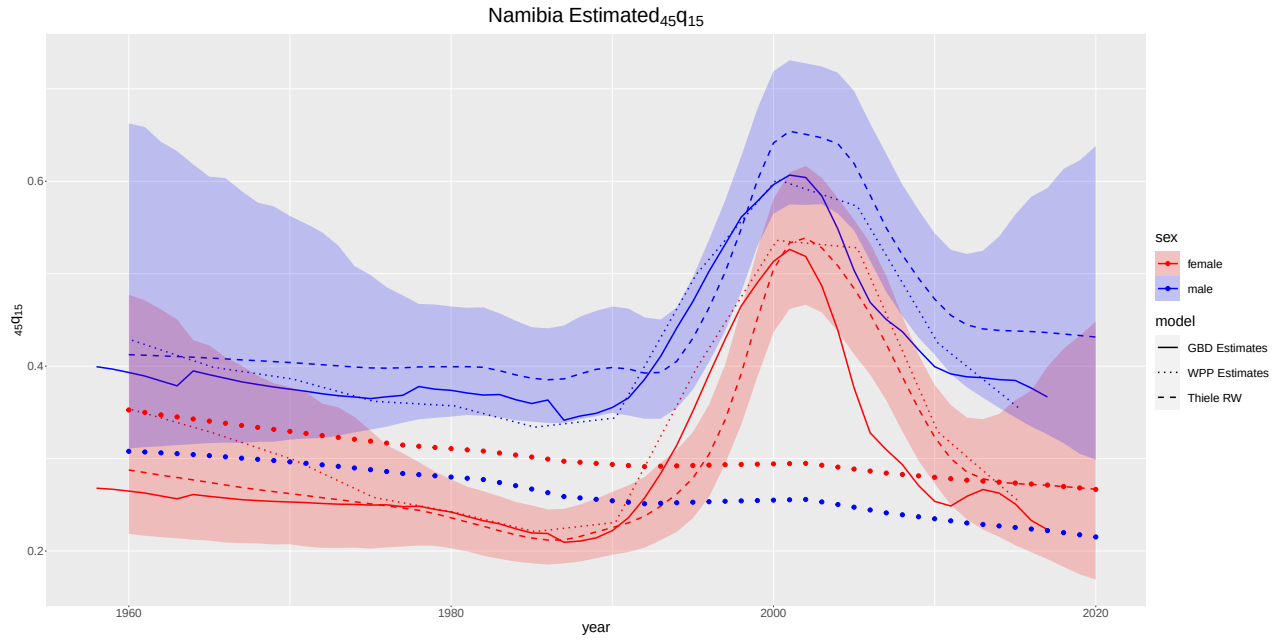

Figure 5: Estimated $_{45}q_{15}$

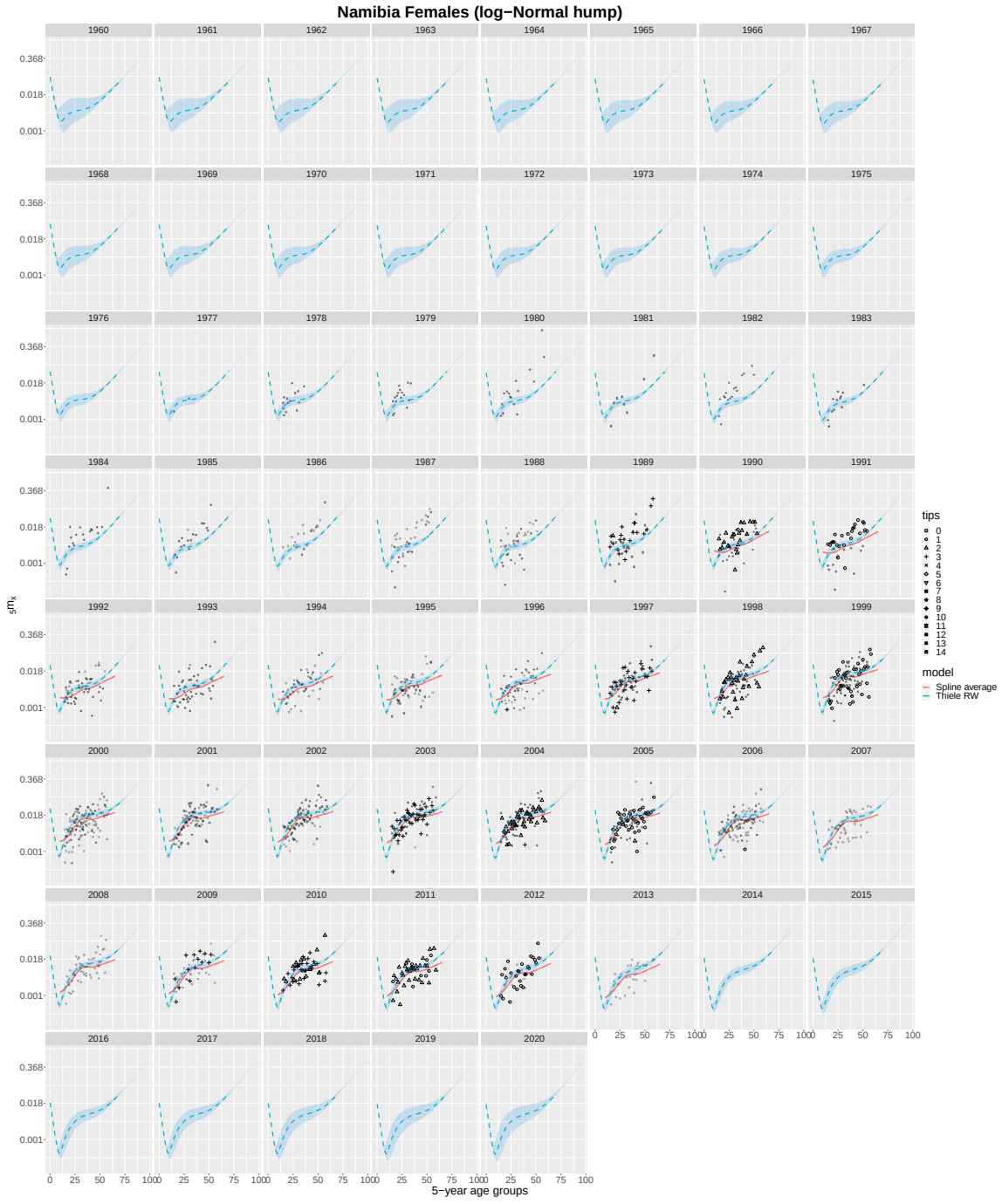

Figure 6: Mortality Schedules

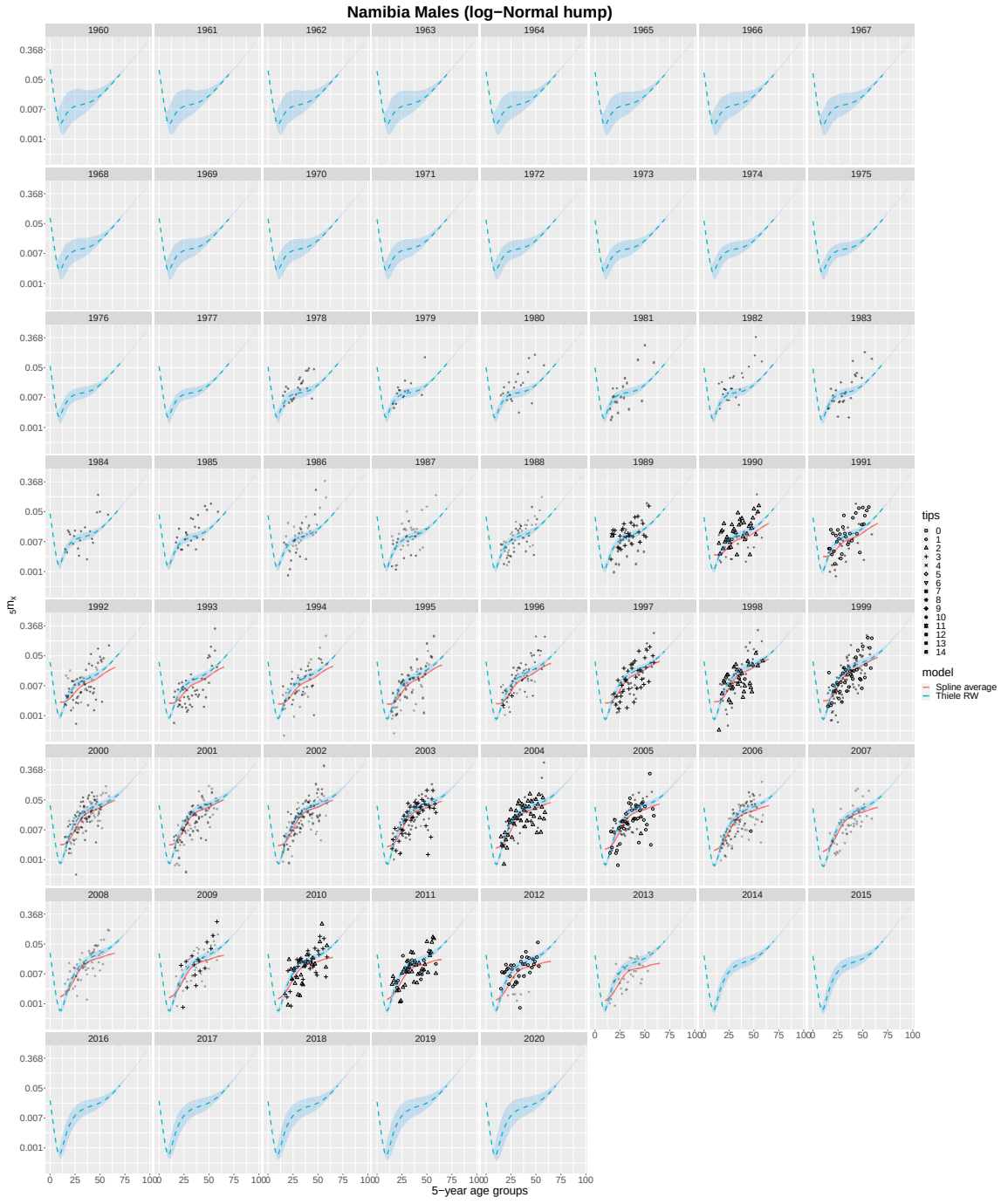

Figure 7: Mortality Schedules

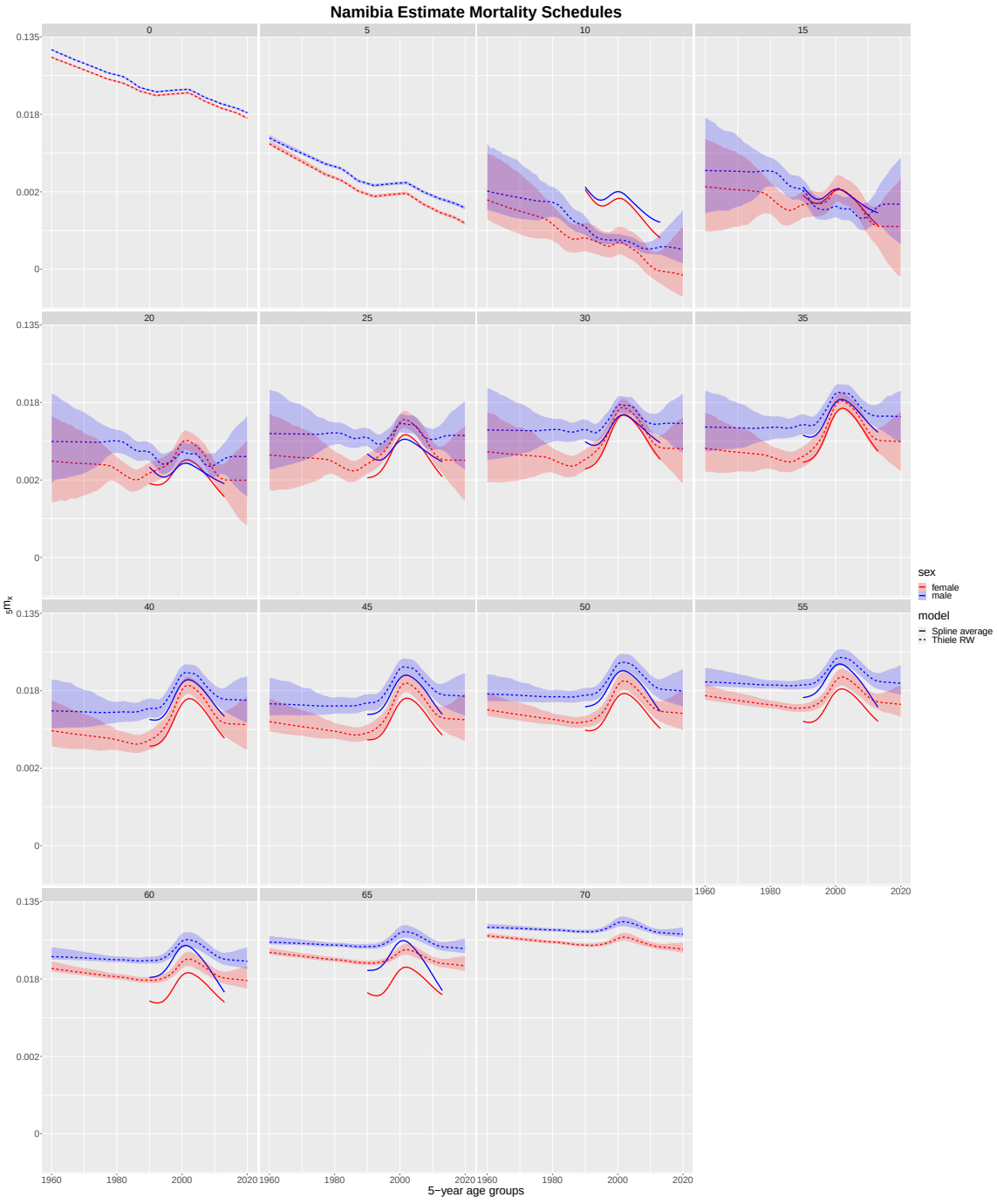

Figure 8: Mortality Schedules

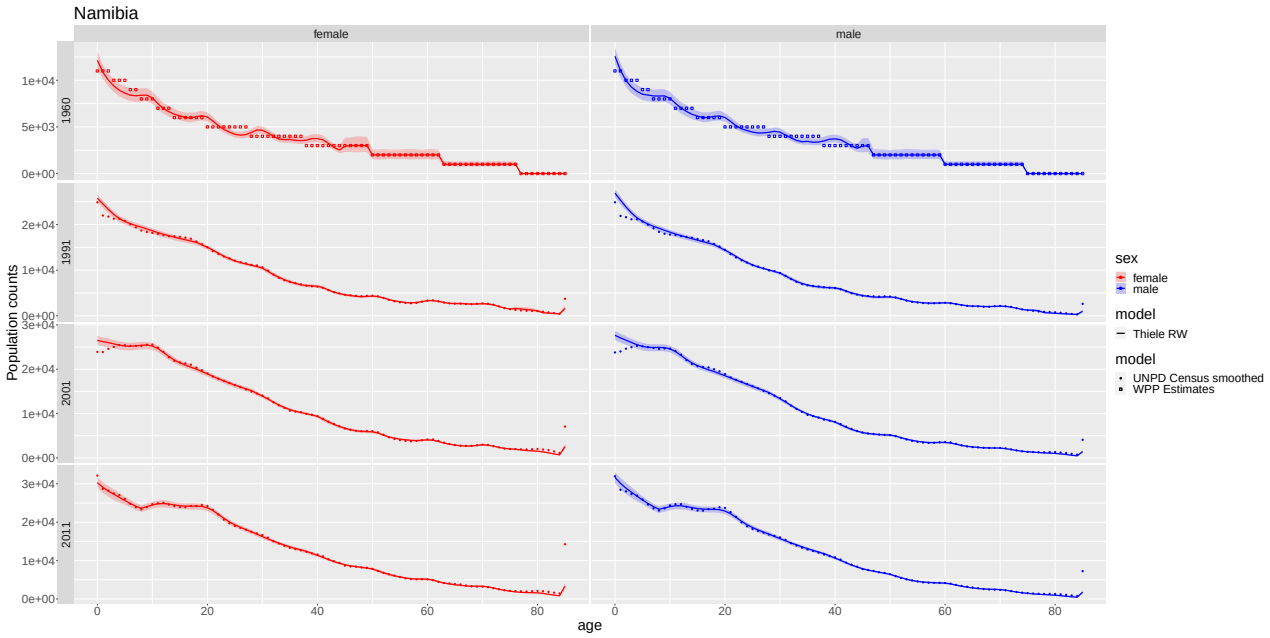

Figure 9: Population

Figure 10: Population

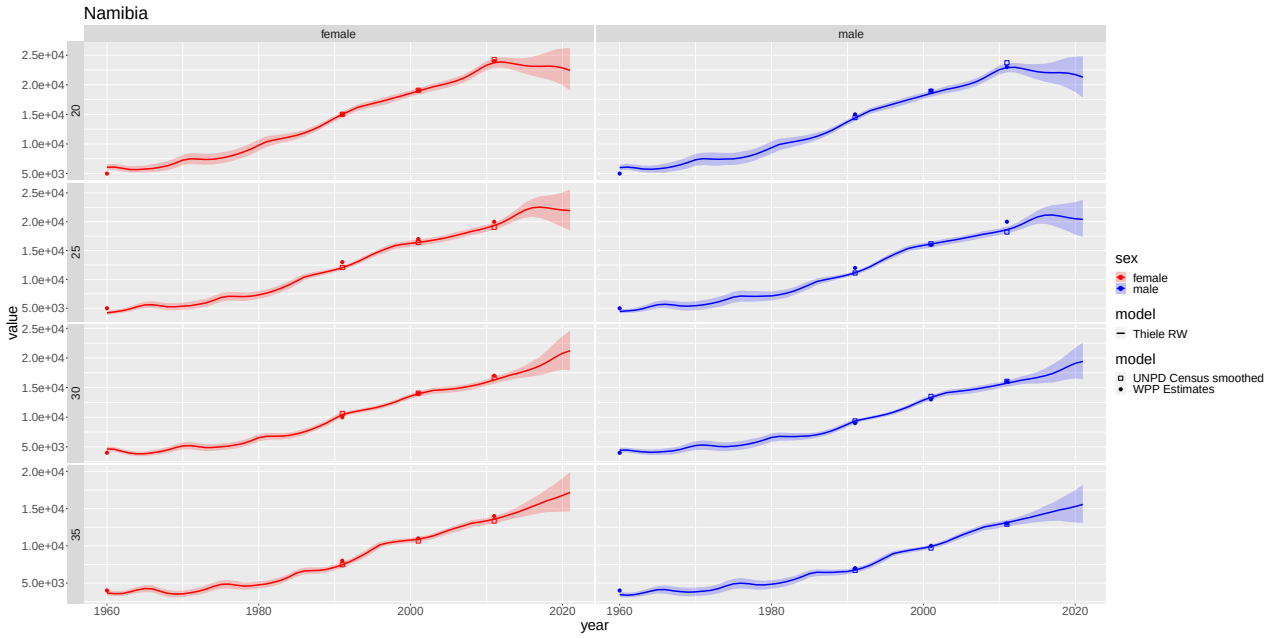

Figure 11: Population

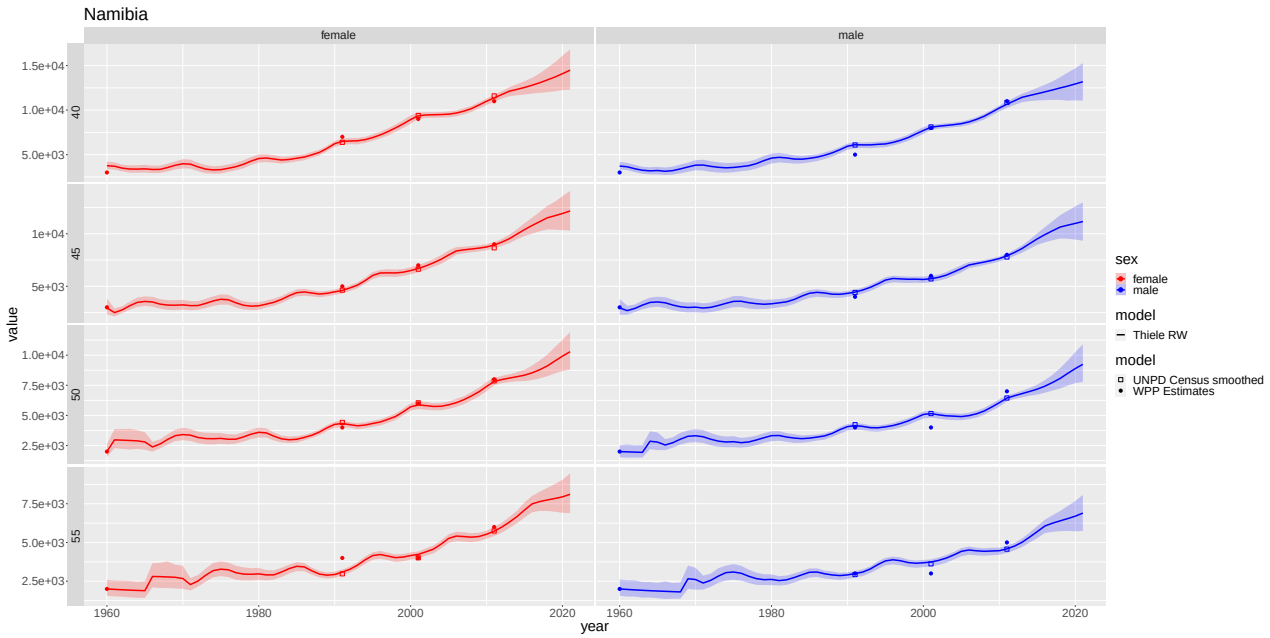

Figure 12: Population

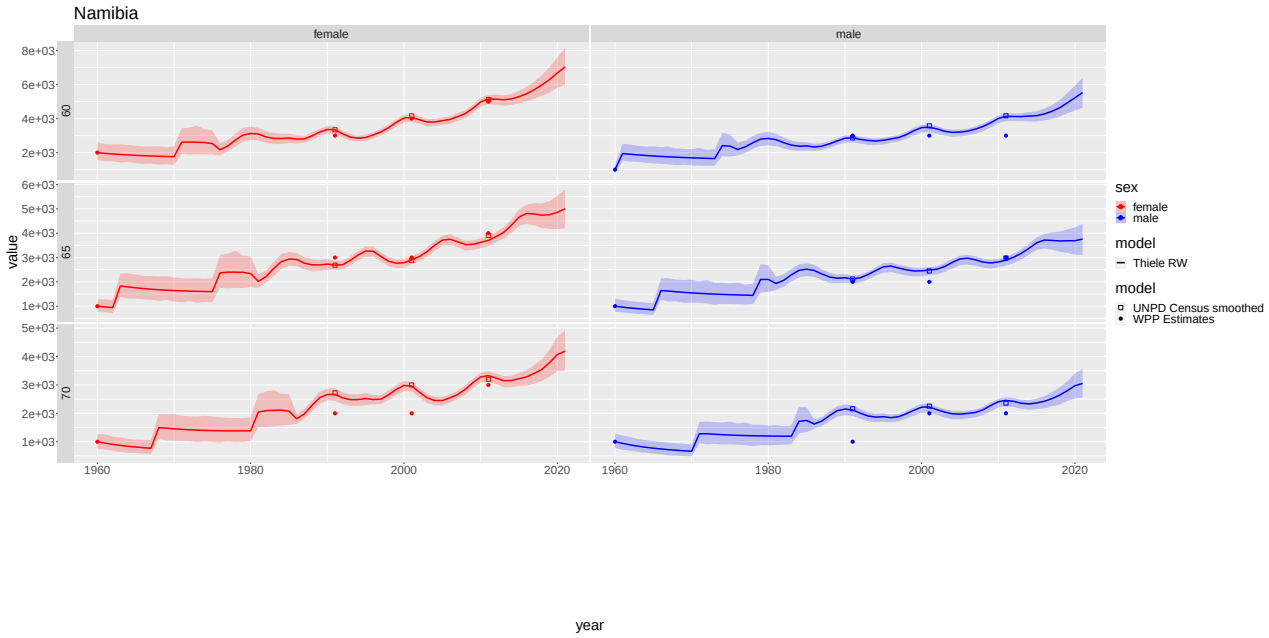

Figure 13: Population

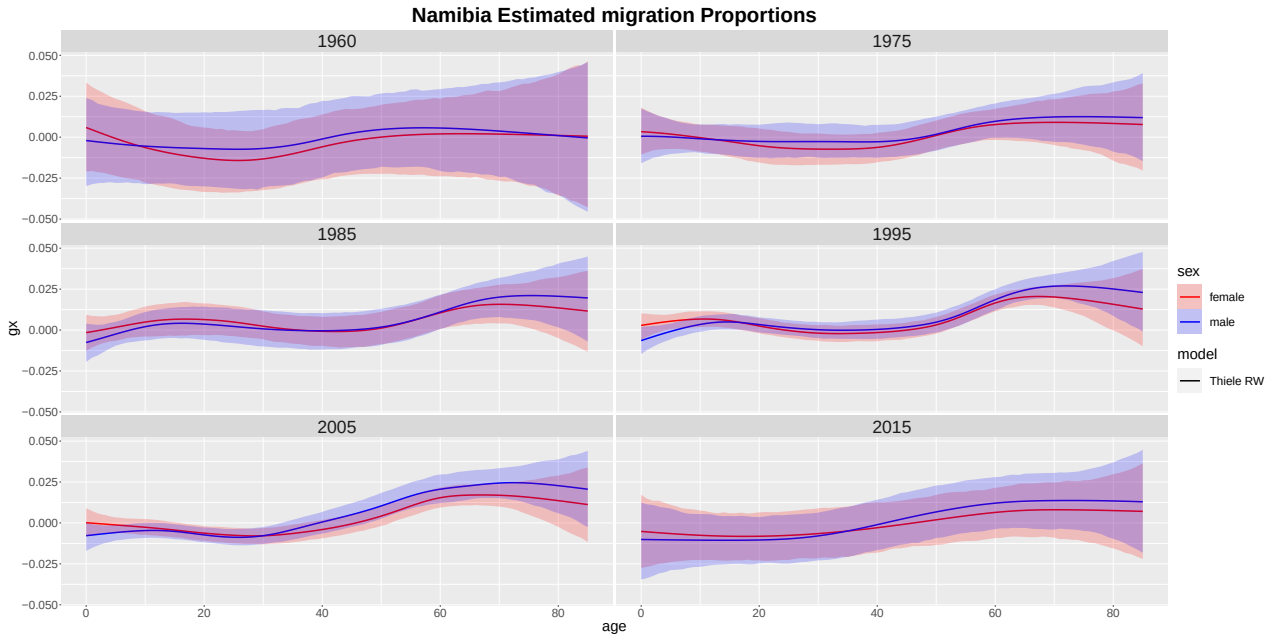

Figure 14: Migration

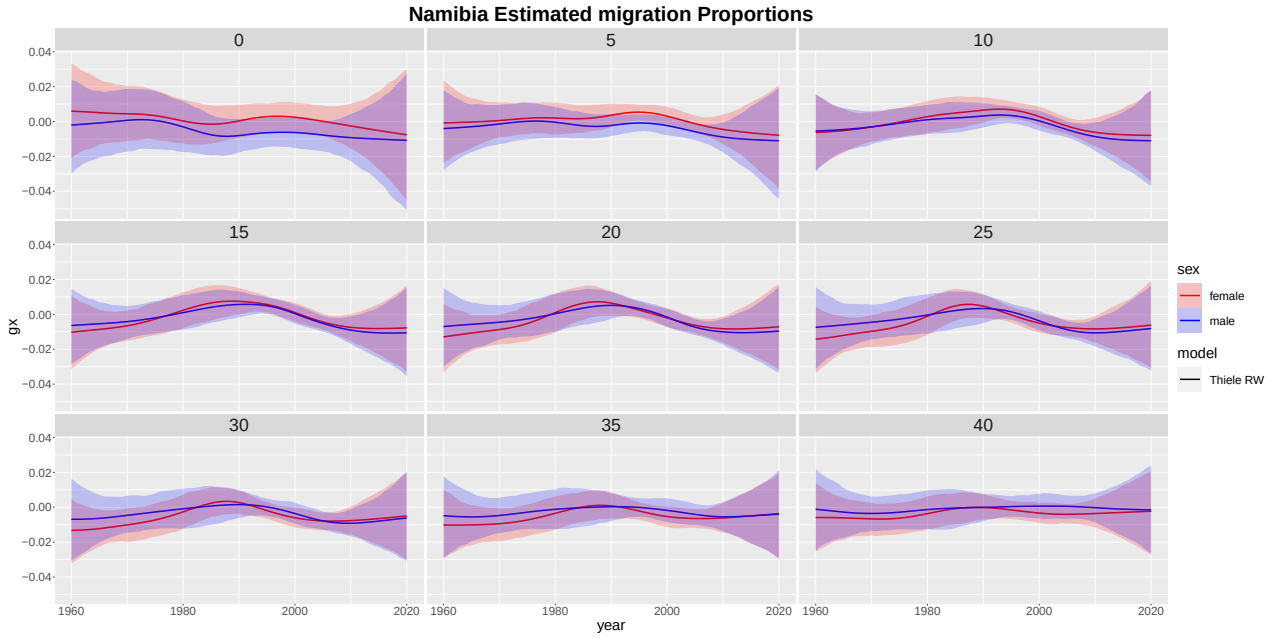

Figure 15: Migration

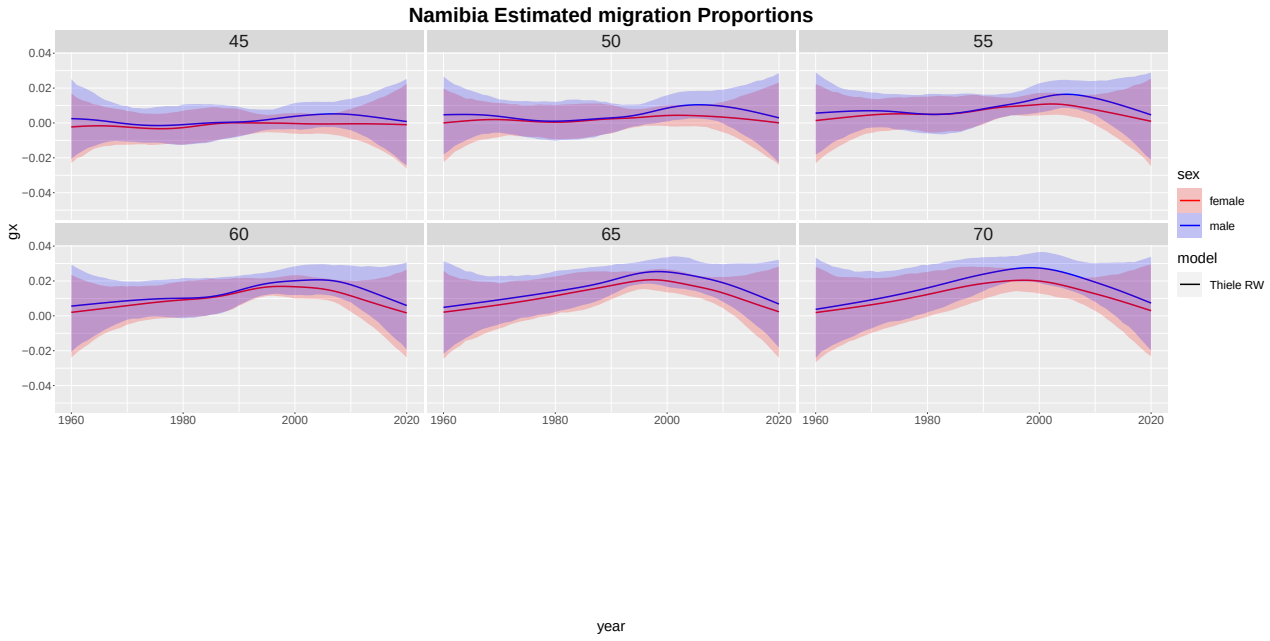

Figure 16: Migration

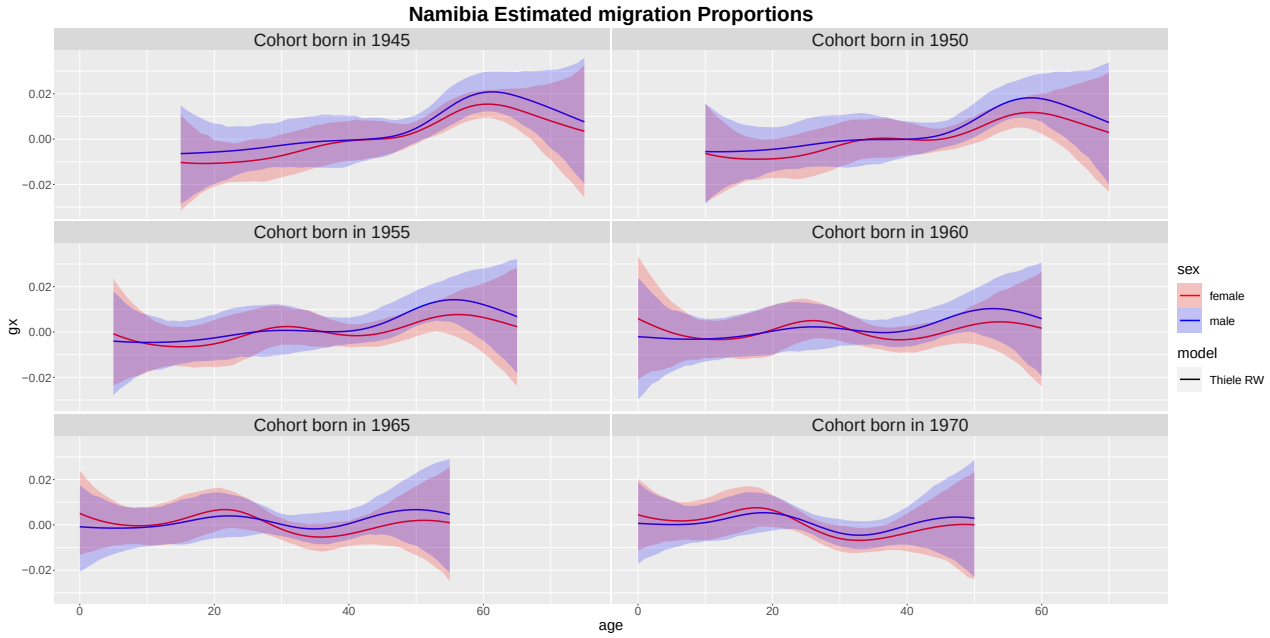

Figure 17: Migration

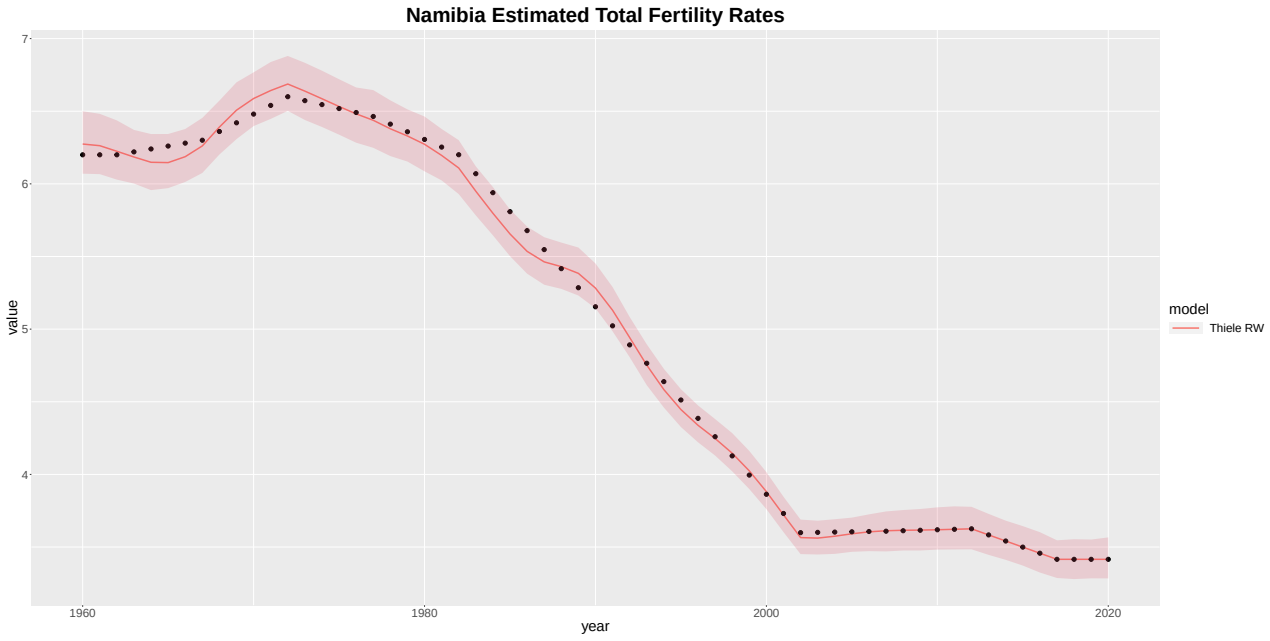

Figure 18: Total Fertility

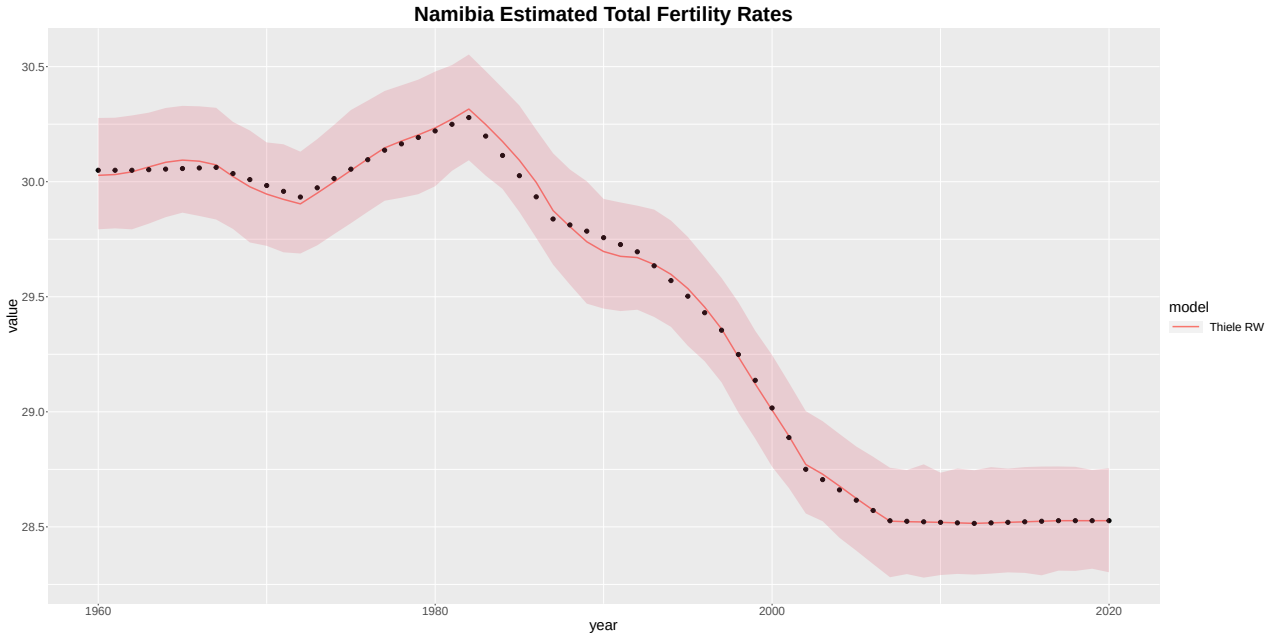

Figure 19: Mean age at births

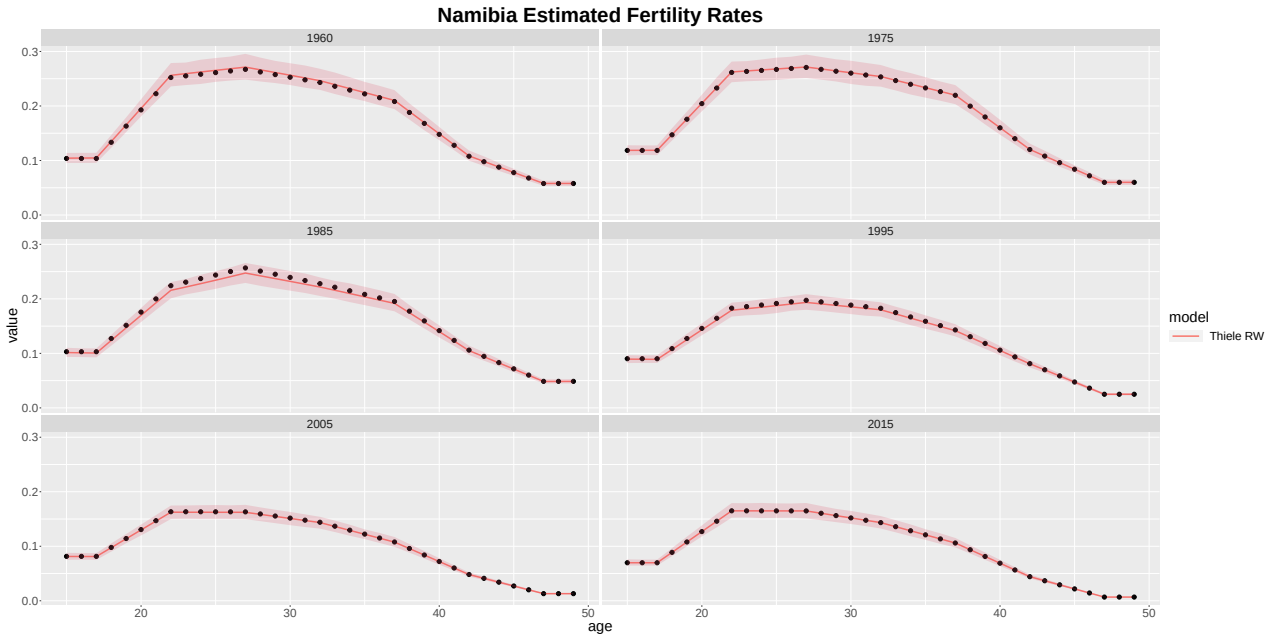

Figure 20: Fertility

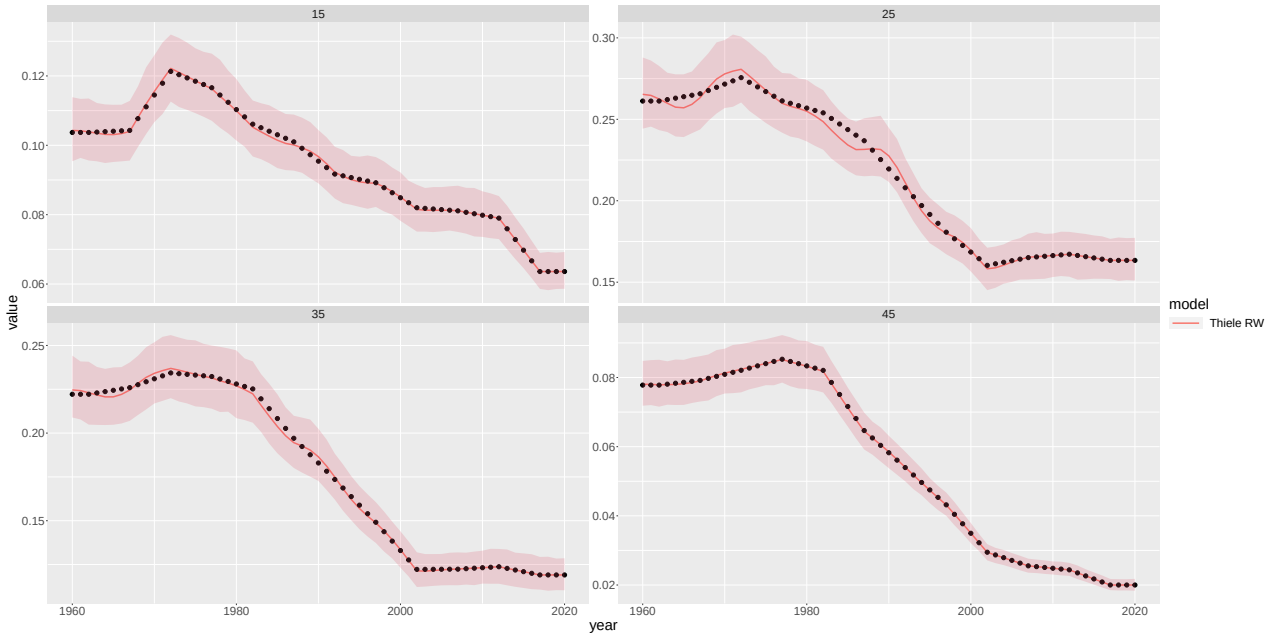

Figure 21: Fertility