Cameroon

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

## # A tibble: 86 x 2
##      age  `2005`
##    <dbl>   <dbl>
## 1      0 337748
## 2      1 306850.
## 3      2 289908.
## 4      3 282849.
## 5      4 274259.
## 6      5 265117.
## 7      6 254493.
## 8      7 245594.
## 9      8 239763.
## 10     9 232630.
## # ... with 76 more rows

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

## # A tibble: 18 x 2
##      age  `1976`
##    <dbl>   <dbl>
## 1      0 605118.
## 2      5 512635.
## 3     10 411125.
## 4     15 345677.
## 5     20 305370.
## 6     25 269228.
## 7     30 240773.
## 8     35 215240.
## 9     40 183224.
## 10    45 149331.
## 11    50 118695.
## 12    55  92248.
## 13    60  69672.
## 14    65  48846.
## 15    70  34361.
## 16    75  23450.
## 17    80  15762.
## 18    85  16650.

## [1] "Census Males"

## # A tibble: 86 x 2
##      age  `2005`
##    <dbl>   <dbl>
## 1      0 343296
## 2      1 315010.
## 3      2 296499.
## 4      3 290401
## 5      4 281627.
## 6      5 272737.
```

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##  7      6 262914.
##  8      7 254492.
##  9      8 249144.
## 10      9 241906.
## # ... with 76 more rows

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

## # A tibble: 18 x 2
##      age `1976`
##    <dbl>  <dbl>
##  1     0 611324.
##  2     5 530589.
##  3    10 431534.
##  4    15 336850.
##  5    20 266002.
##  6    25 221801.
##  7    30 198387.
##  8    35 184225.
##  9    40 165759.
## 10    45 142701.
## 11    50 117673.
## 12    55  93580.
## 13    60  71082.
## 14    65  48797.
## 15    70  32937.
## 16    75  22064.
## 17    80  14288.
## 18    85  17413.
```

Thiele log-Normal Hump Spline

```
## [1] "false convergence (8)"

##       log_tau2_logpop      log_tau2_logpop      log_tau2_logpop      log_tau2_logpop            log
##          3.151330e+00         2.078915e+00         3.151330e+00         2.078915e+00              4
##       log_dispersion       log_dispersion       log_lambda_tp            tp_slope
##          1.300000e+00         1.300000e+00         5.000000e+00        -8.889256e-12              3
##       log_lambda_phi       log_lambda_psi          log_lambda_A         log_lambda_B      log_lan
##          8.356928e+00         8.356928e+00         8.356928e+00         8.356928e+00              4
##    log_lambda_epsilon
##          4.764865e+00
```
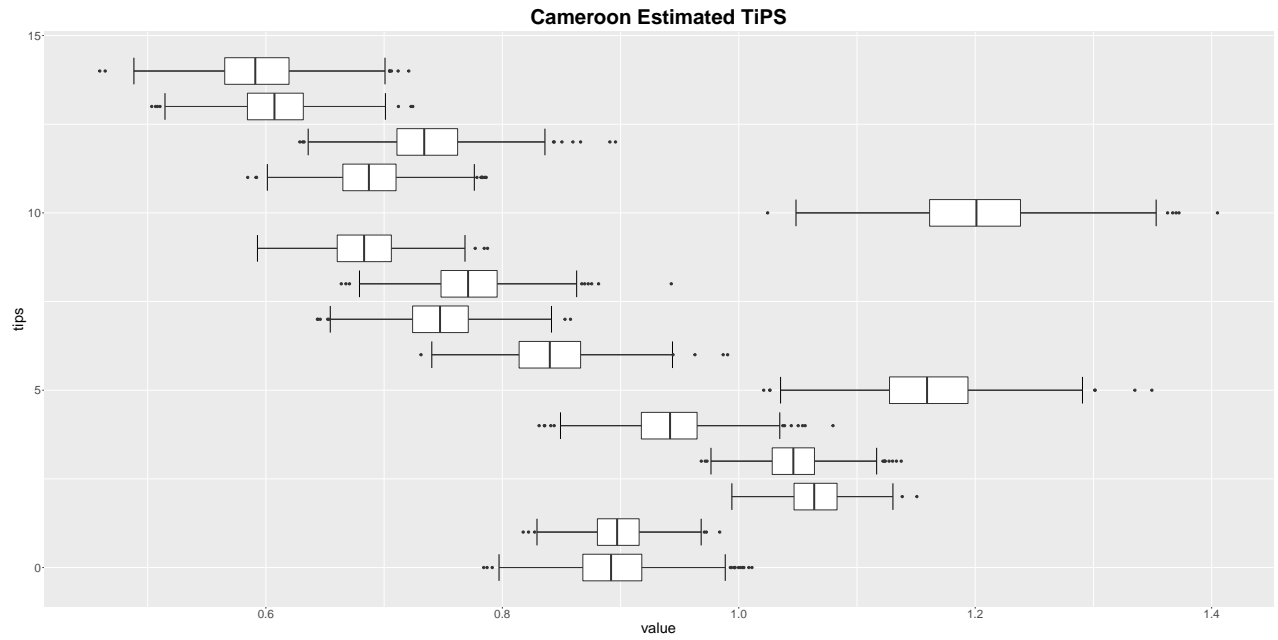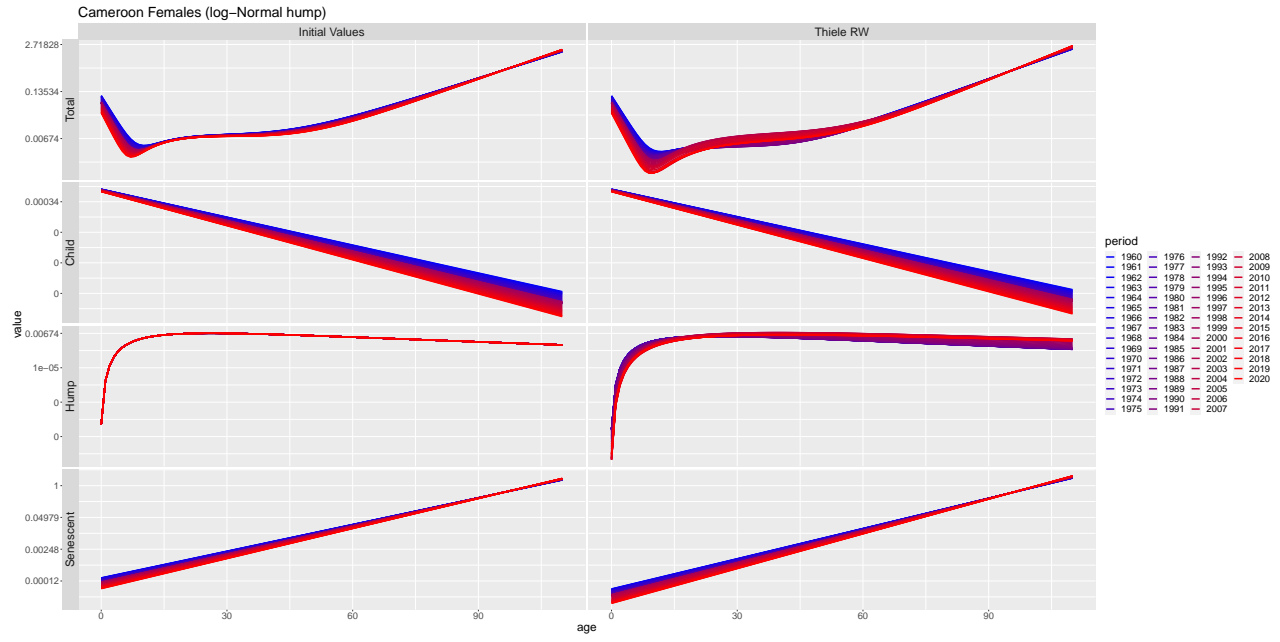
Figure 1: Estimated TiPS
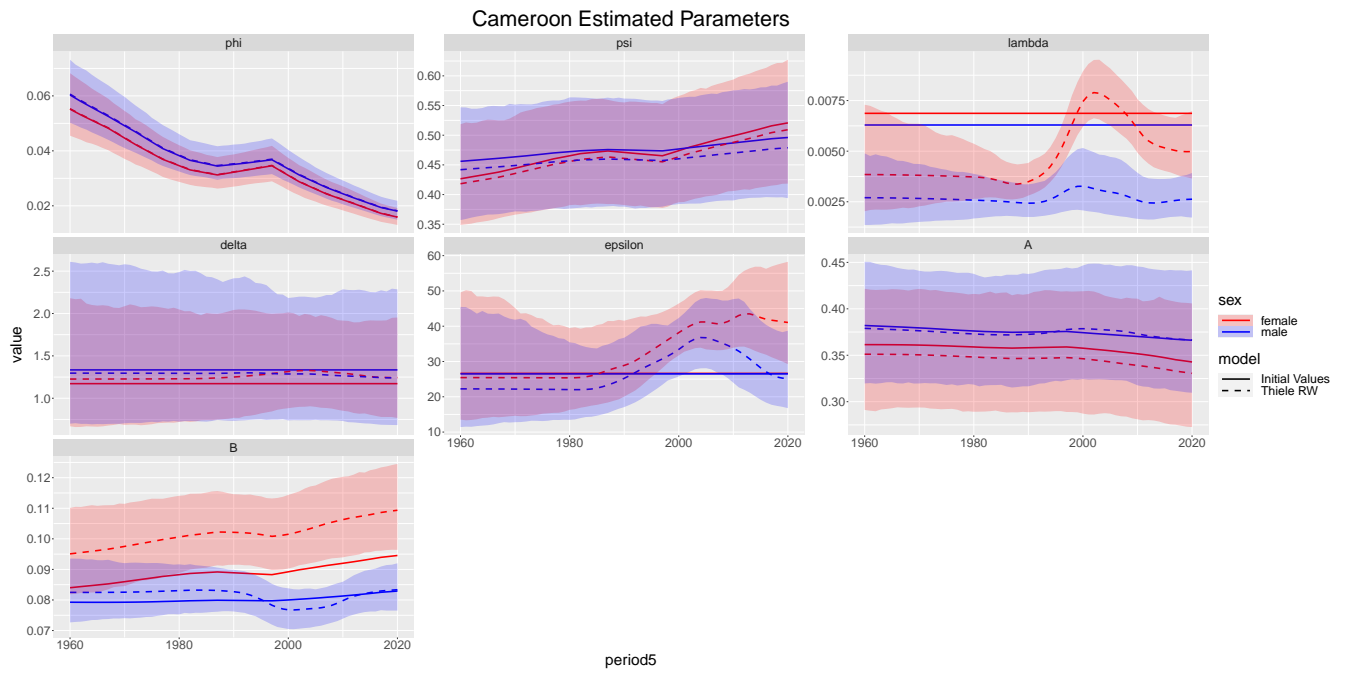
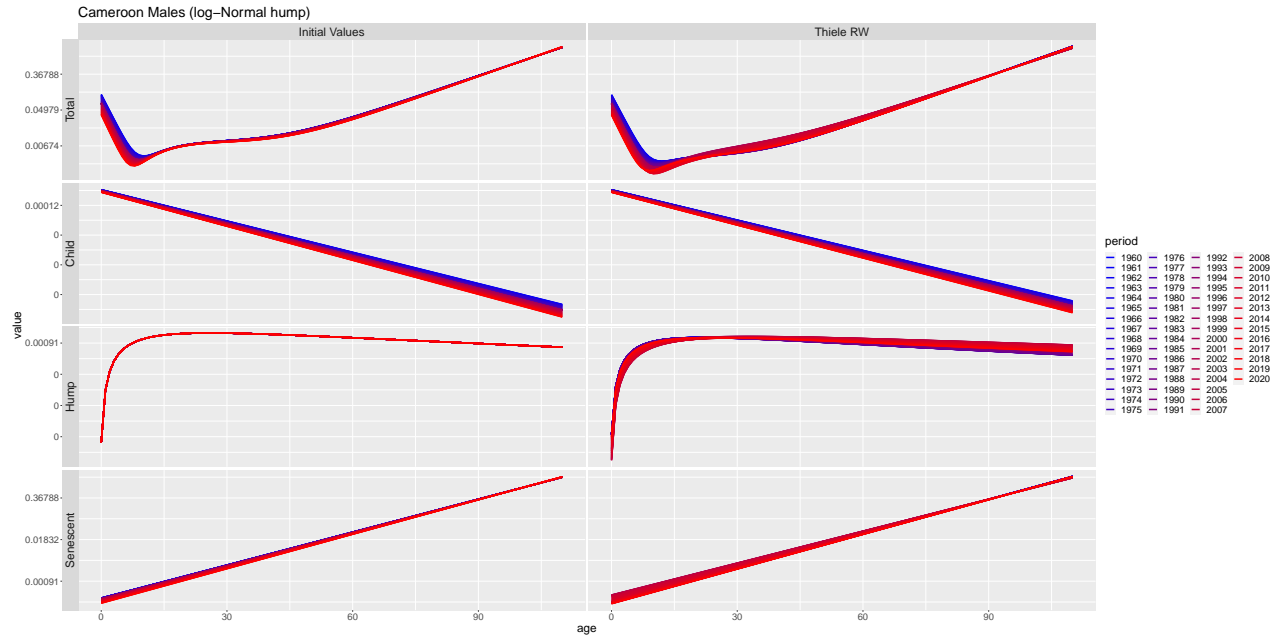Figure 2: Estimated parameters

3

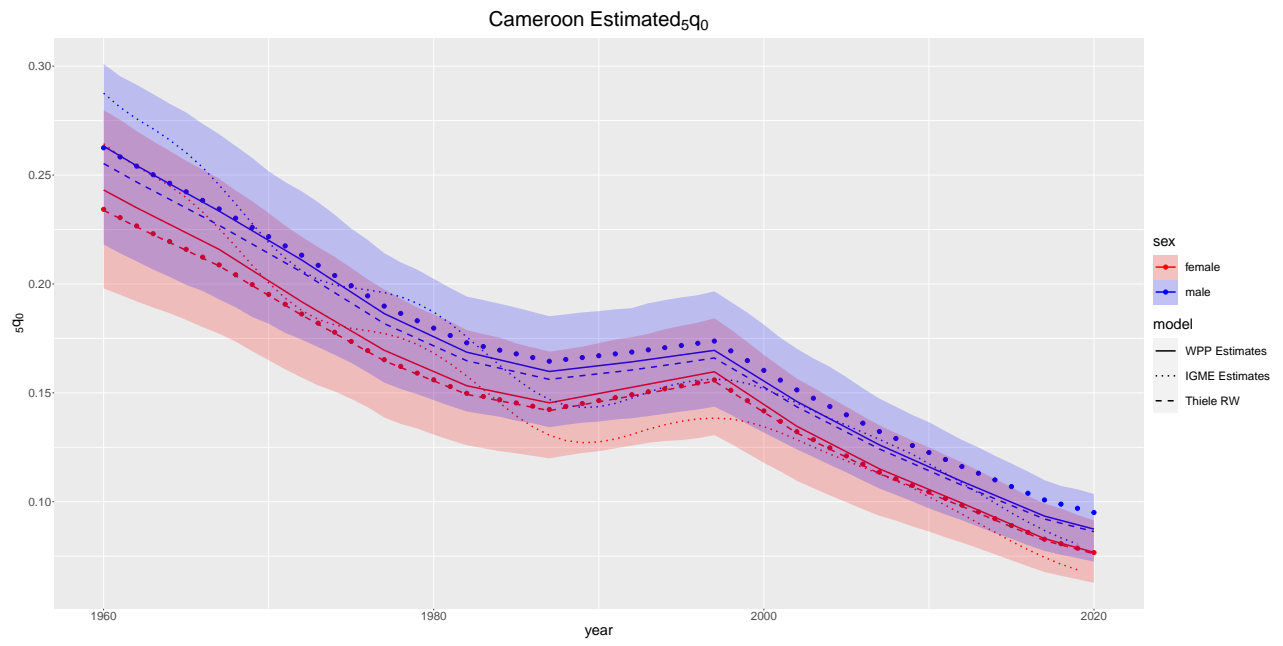Figure 3: Thiele Decomposed

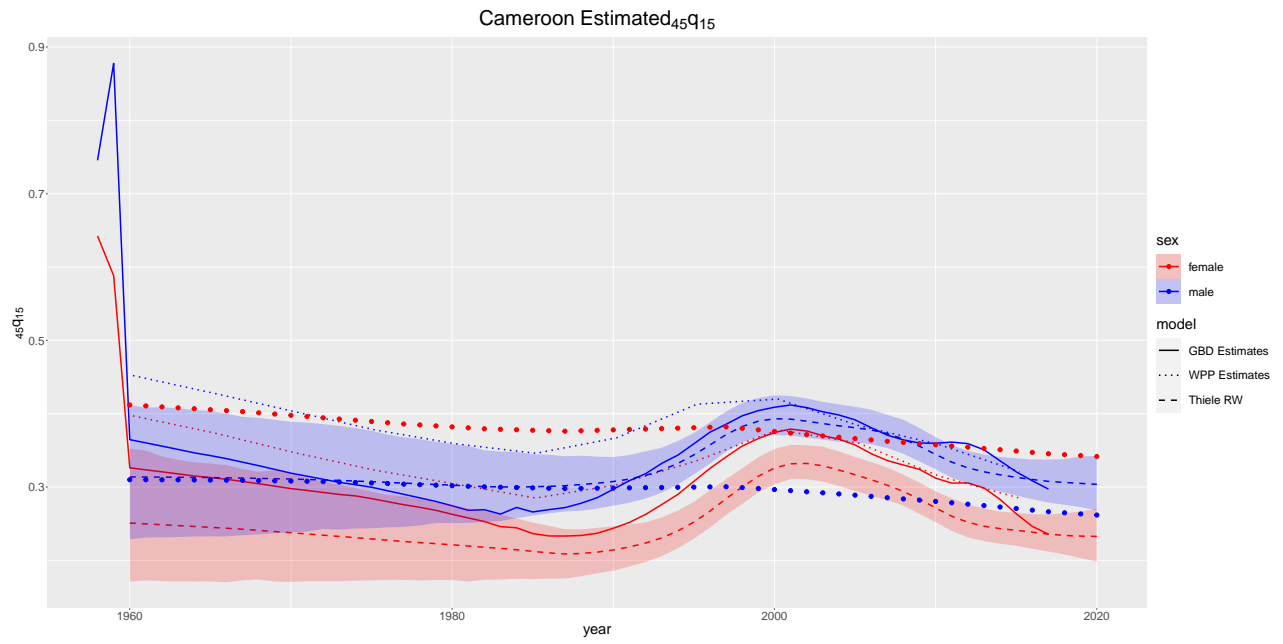Figure 4: Thiele Decomposed

Figure 5: Estimated $_5q_0$
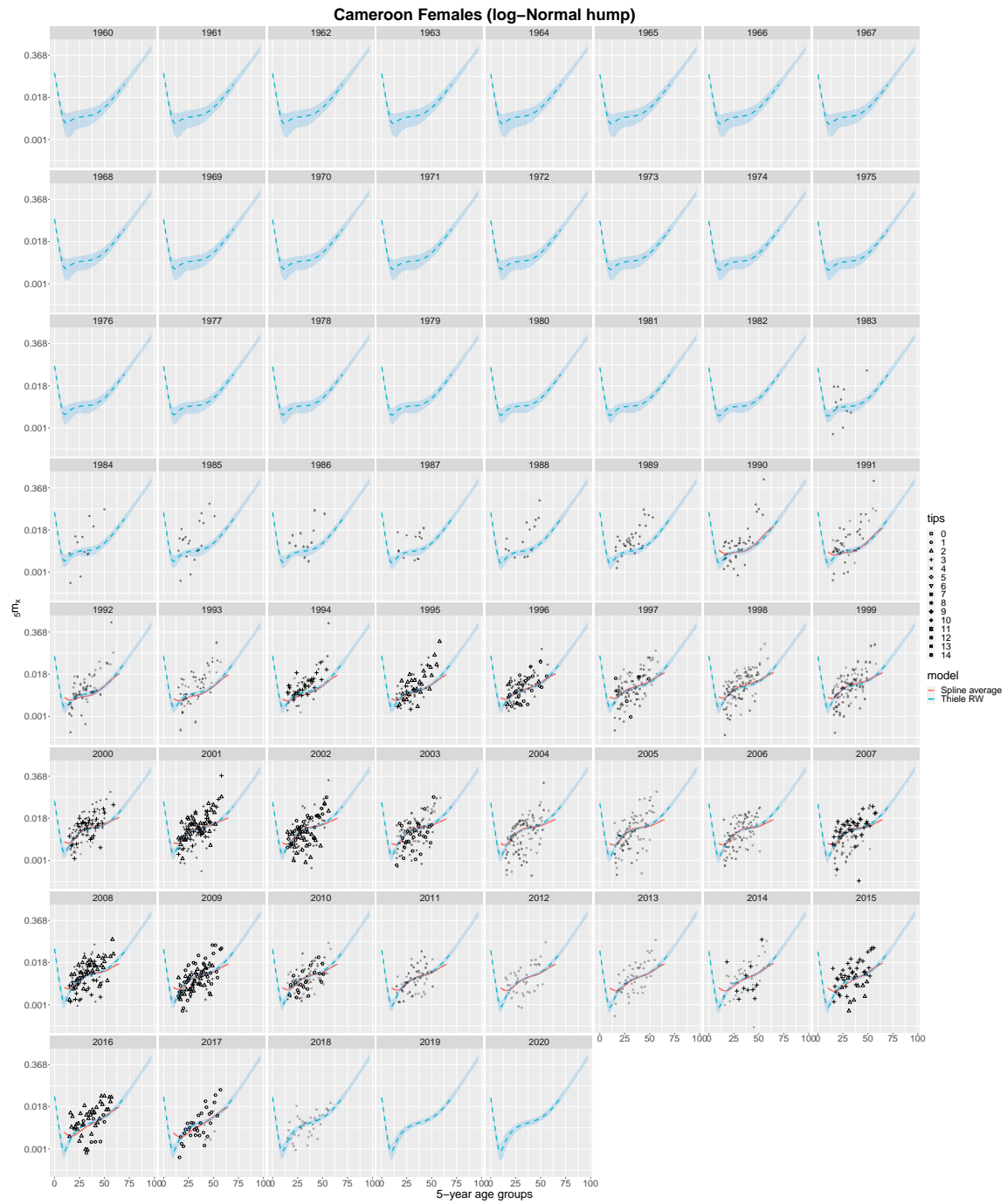

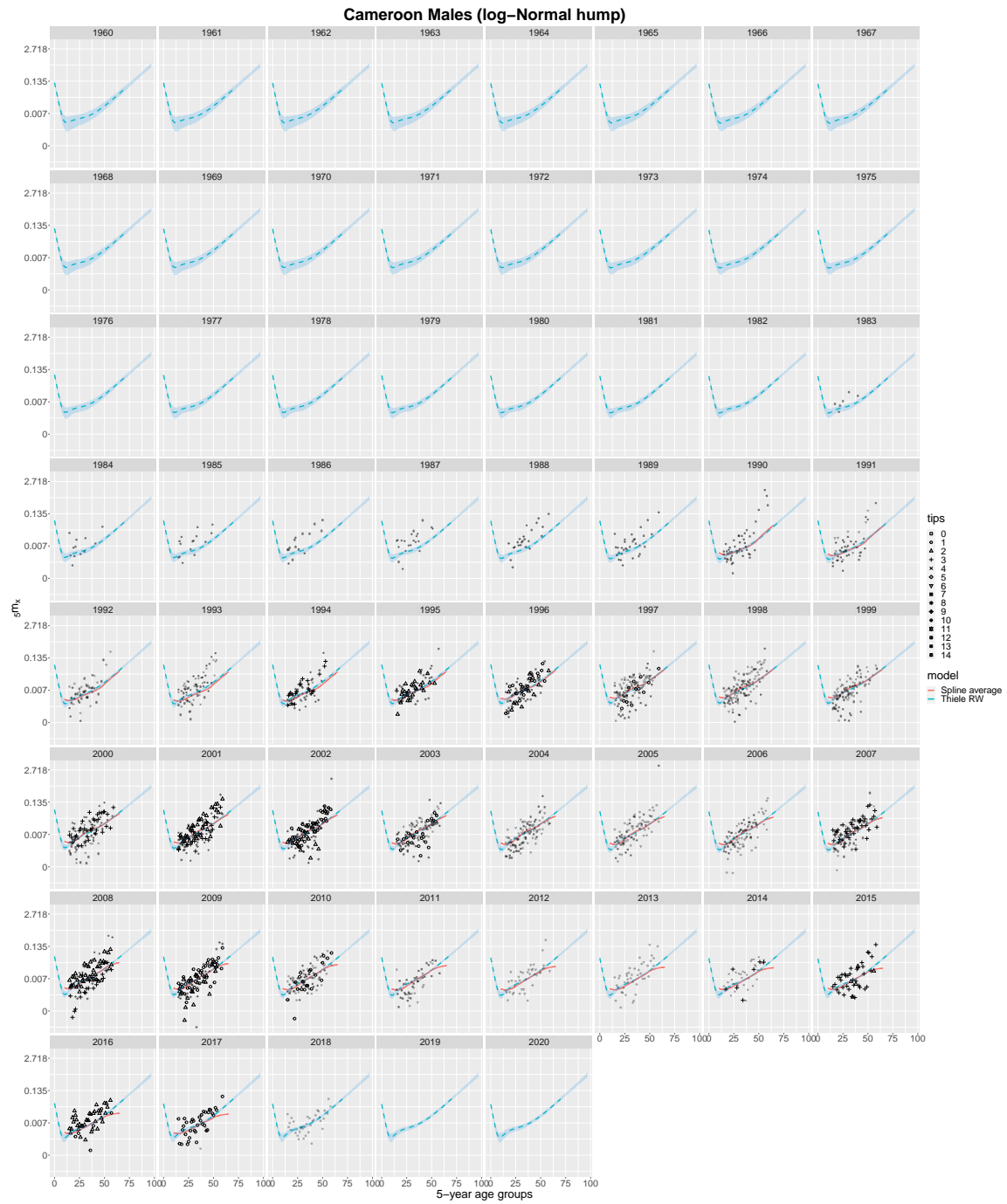Figure 6: Estimated $_{45}q_{15}$

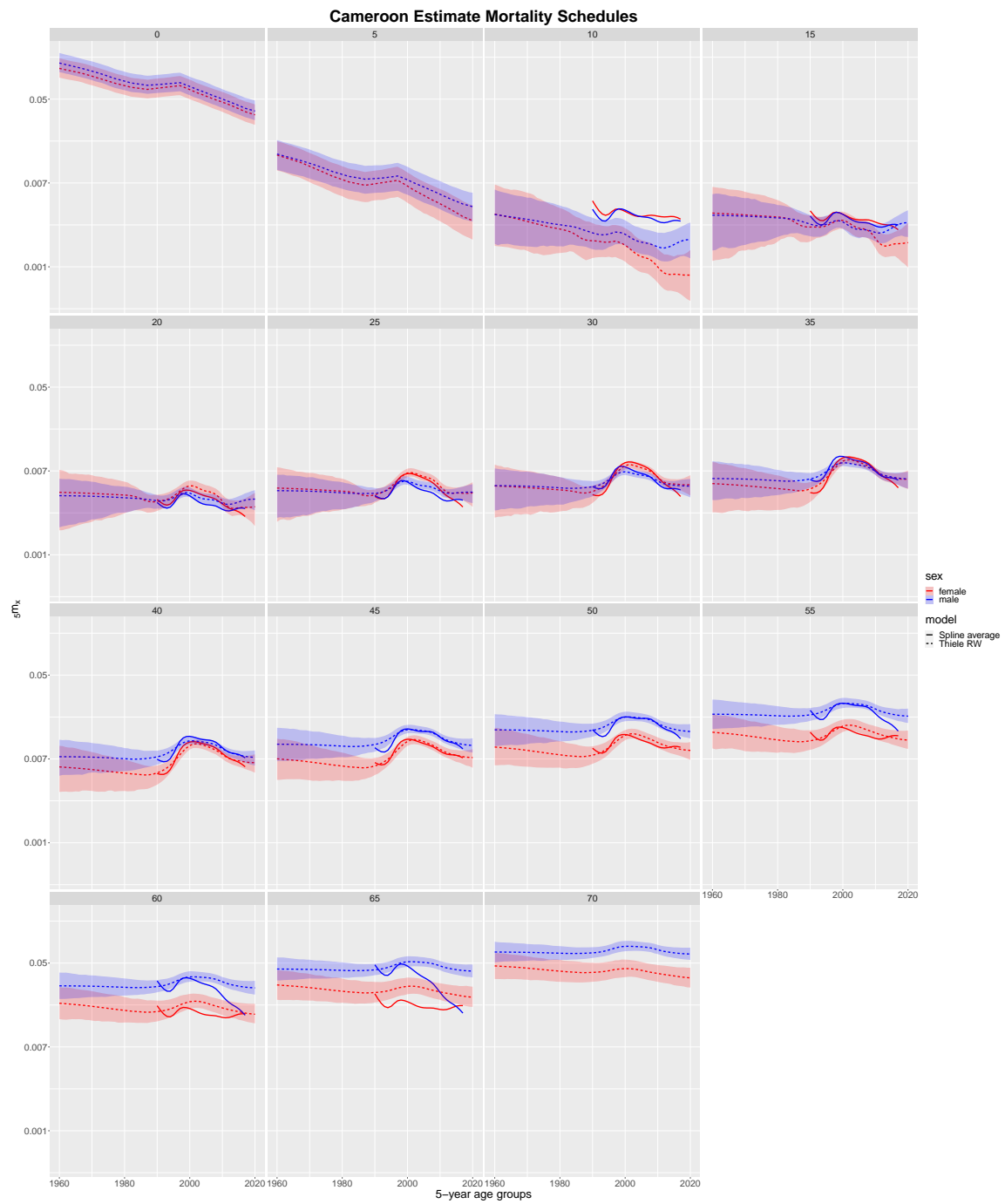Figure 7: Mortality Schedules

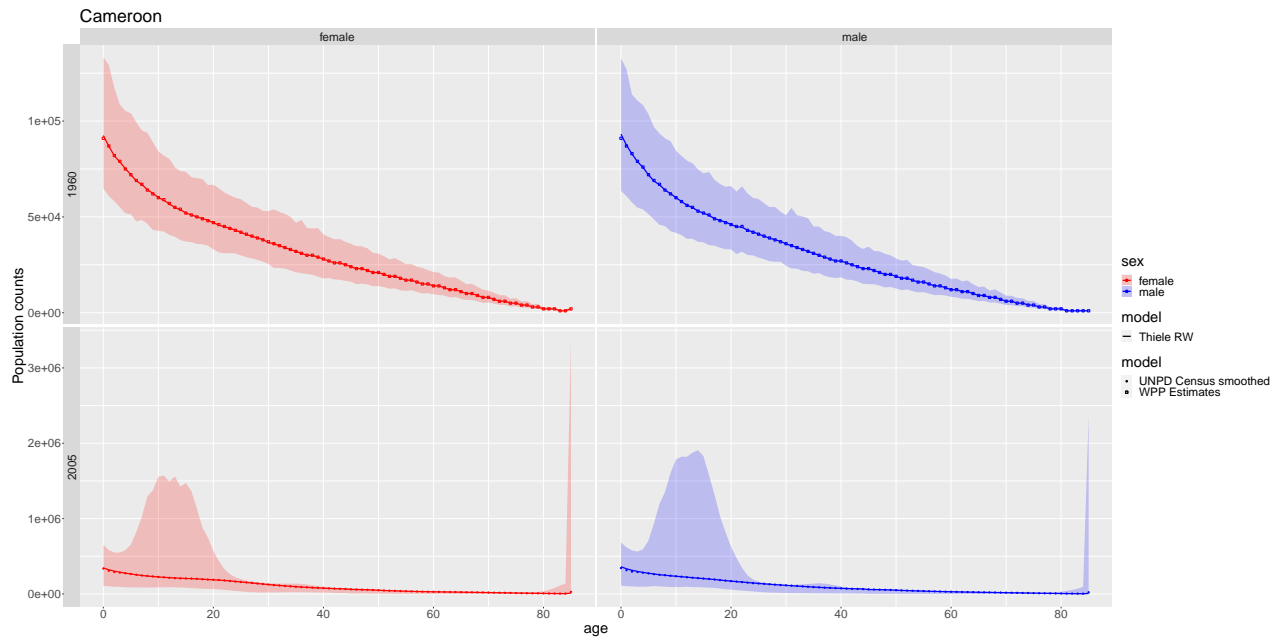Figure 8: Mortality Schedules

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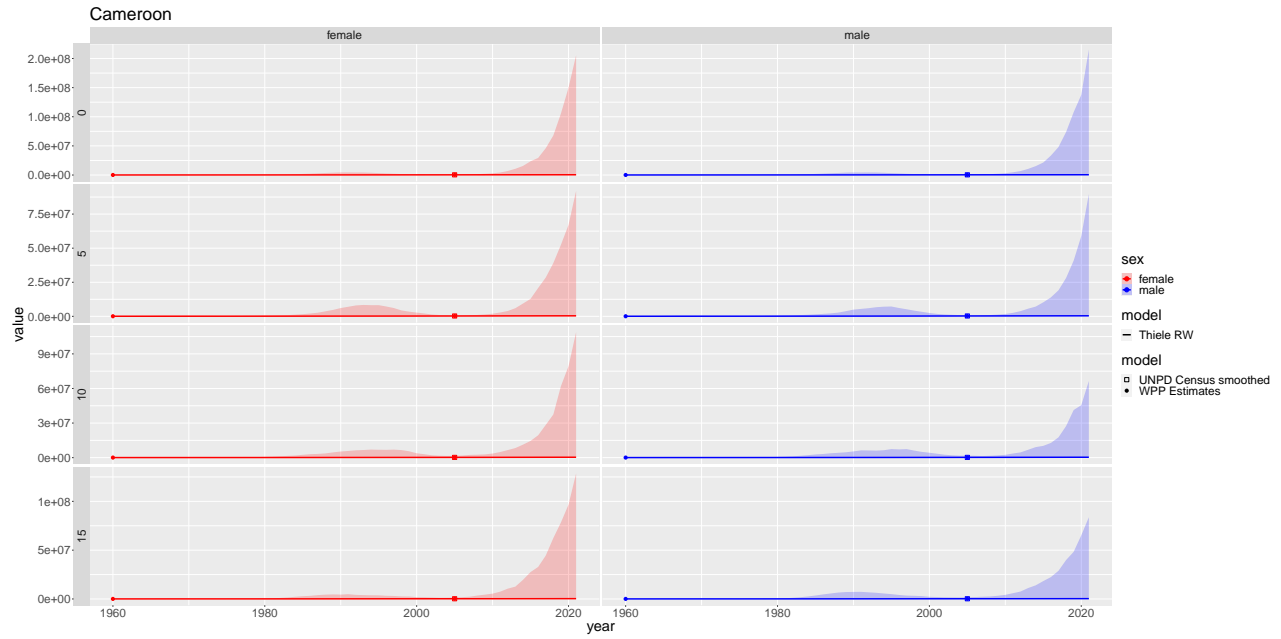Figure 9: Mortality Schedules

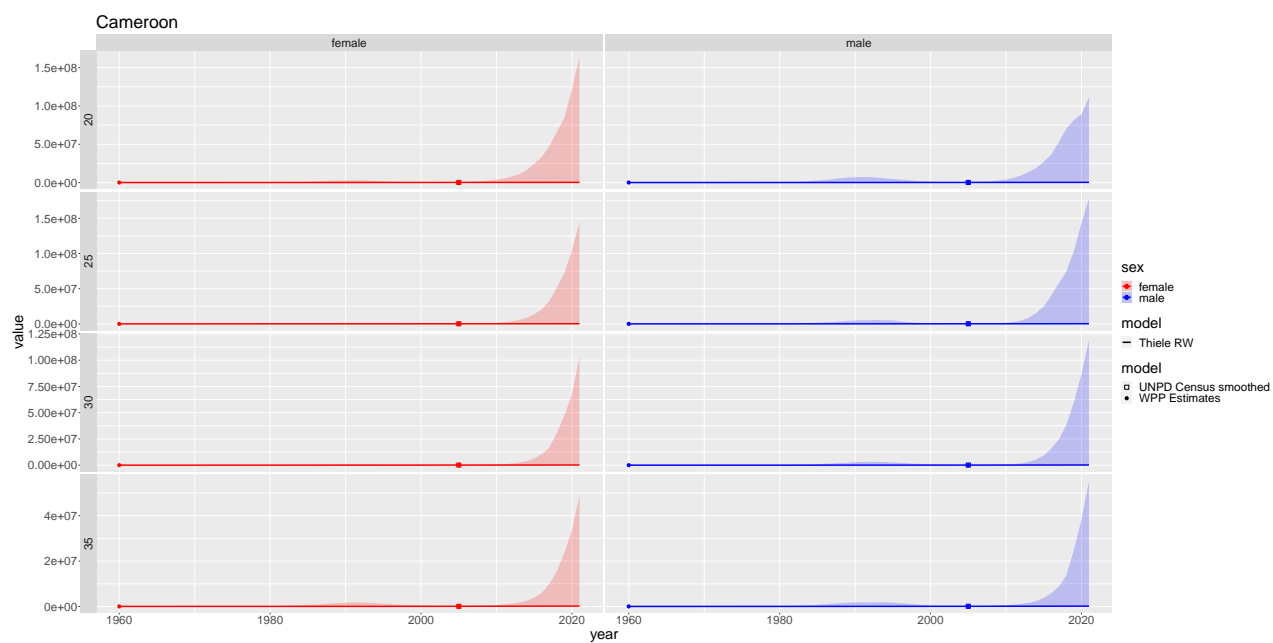Figure 10: Population
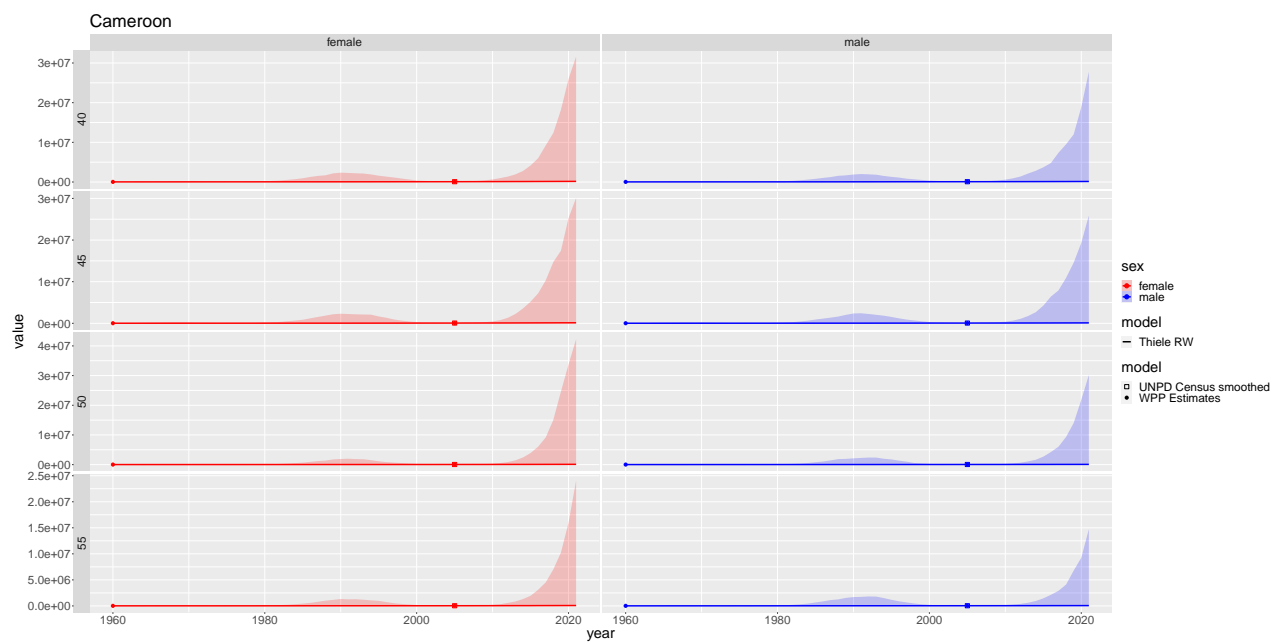

Figure 11: Population

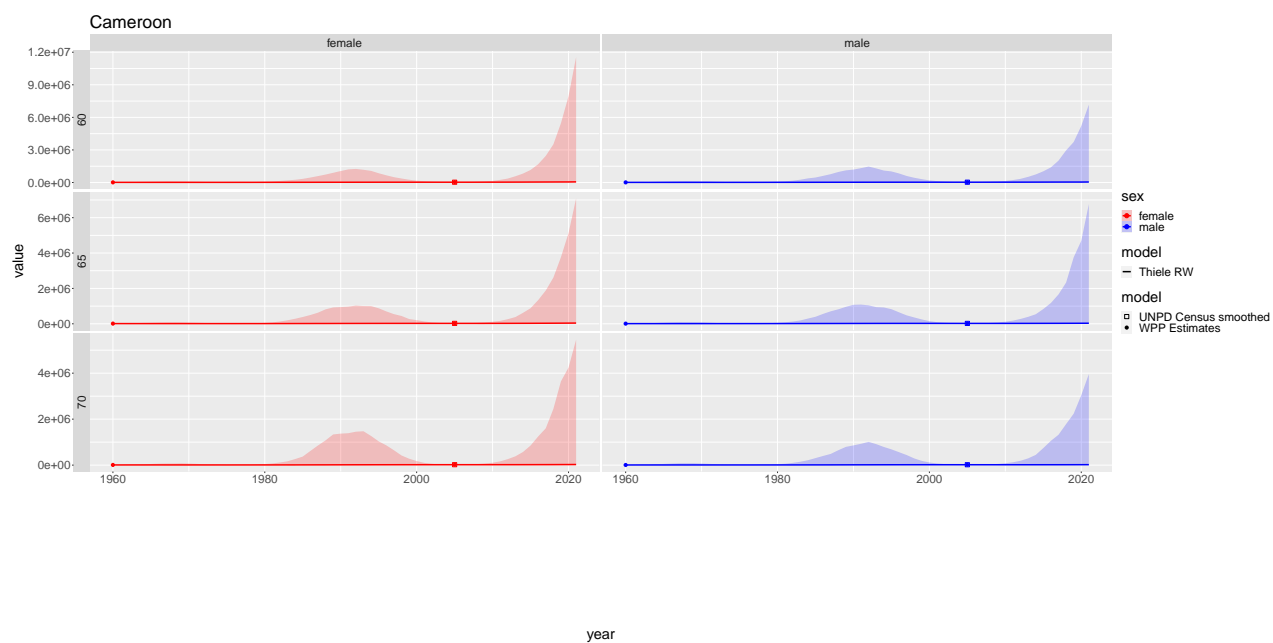Figure 12: Population

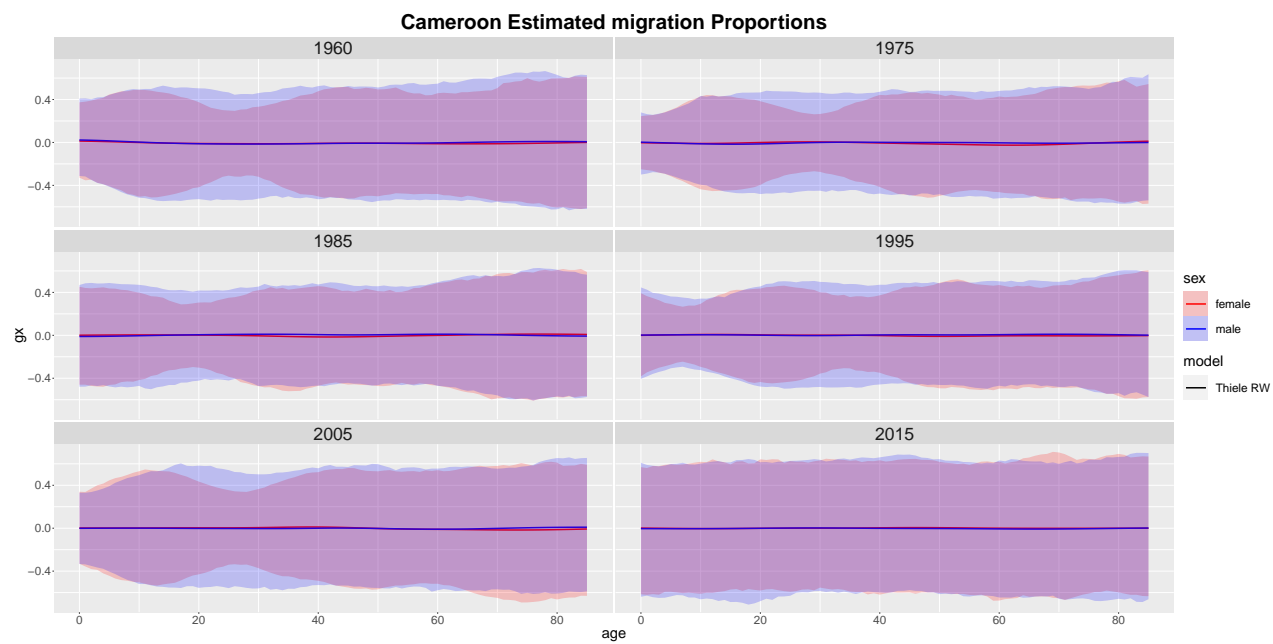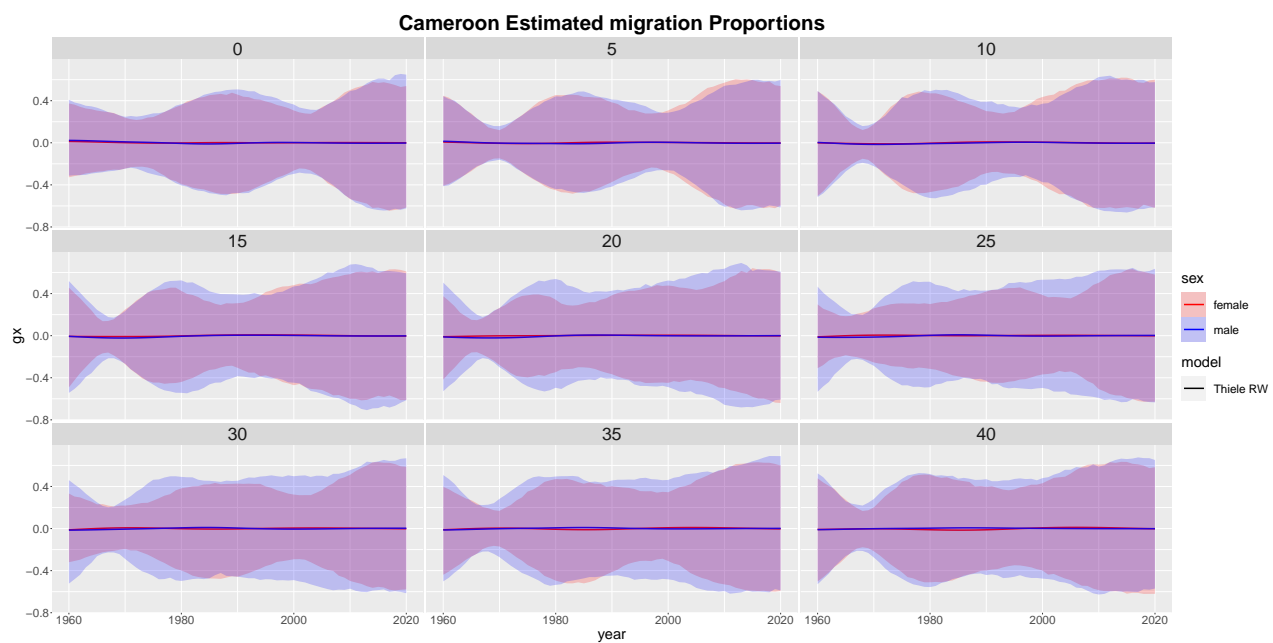Figure 13: Population

Figure 14: Population

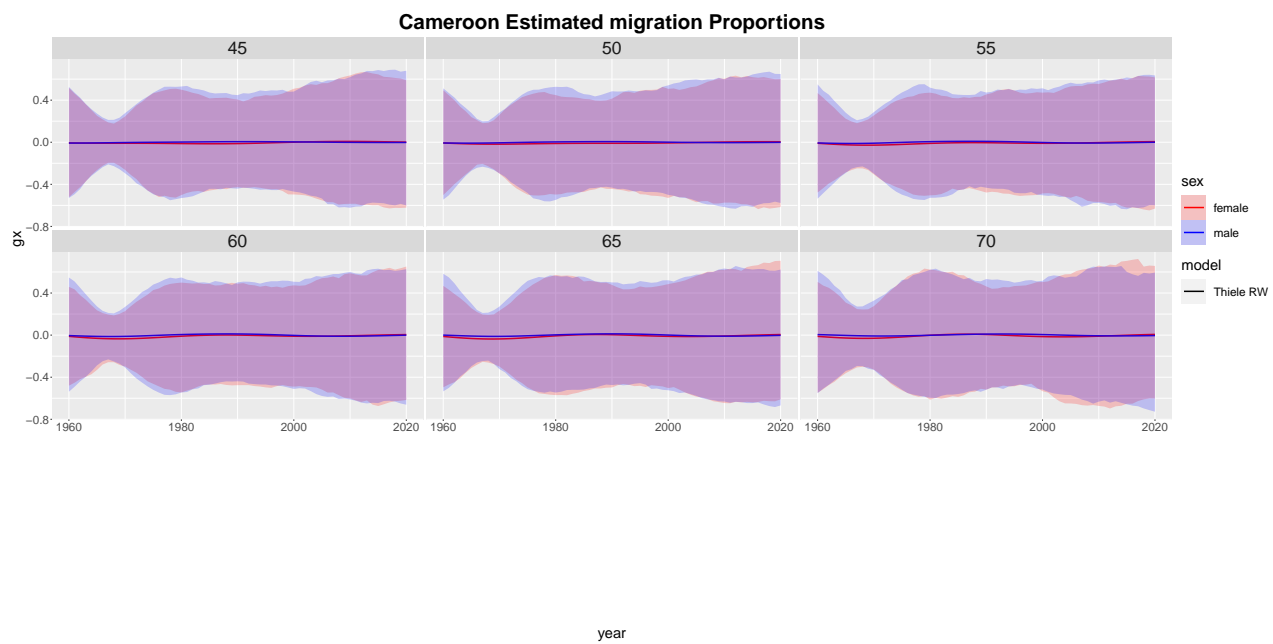Figure 15: Migration

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Figure 16: Migration
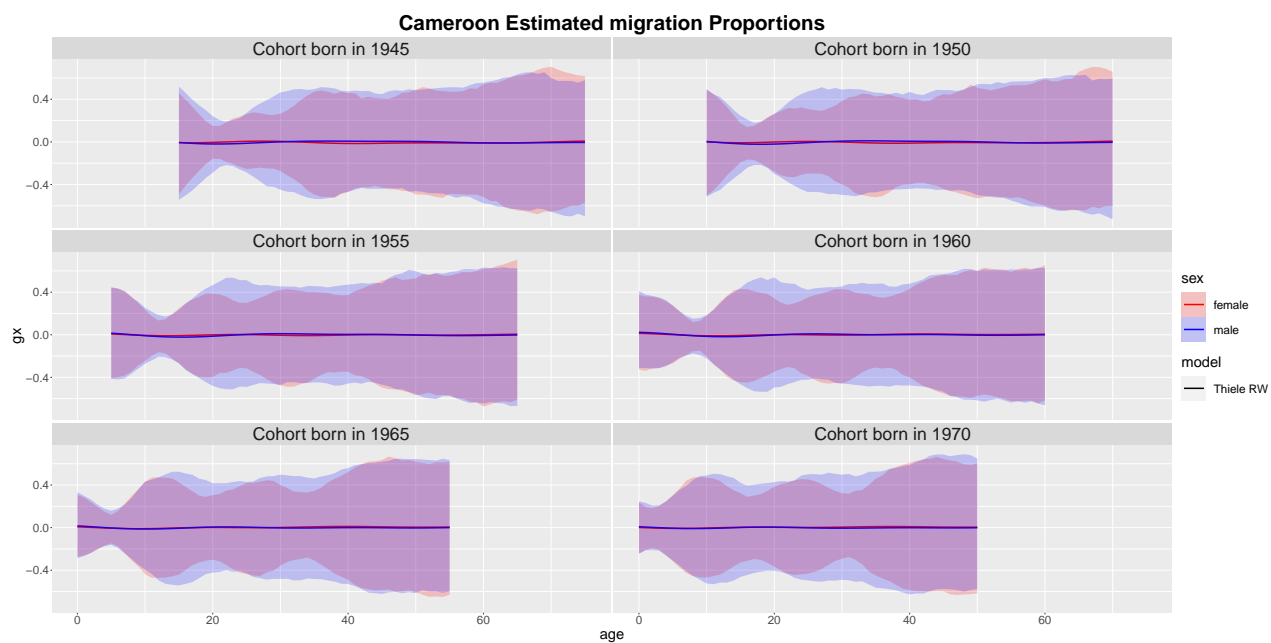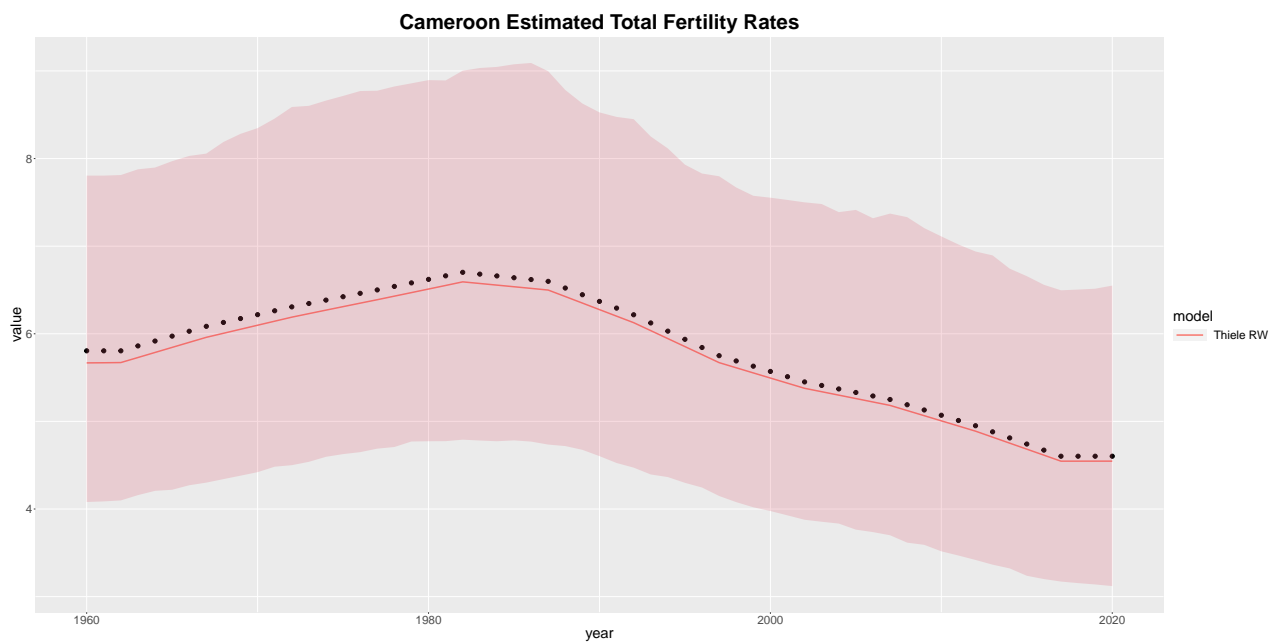

Figure 17: Migration
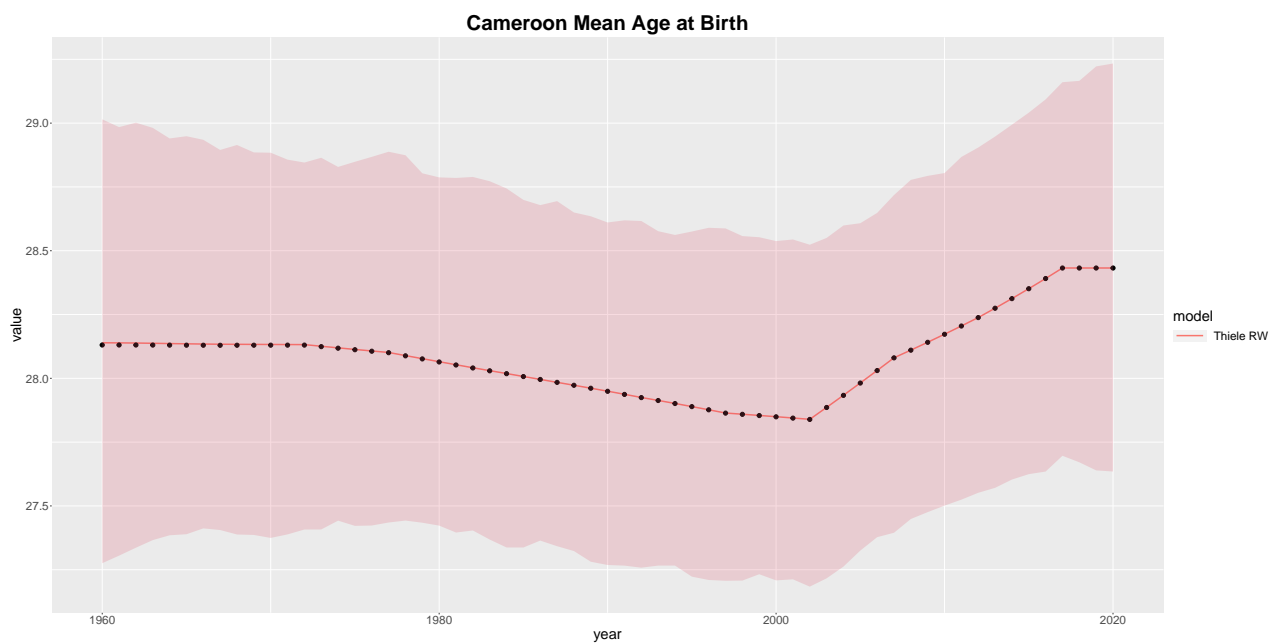
Figure 18: Migration
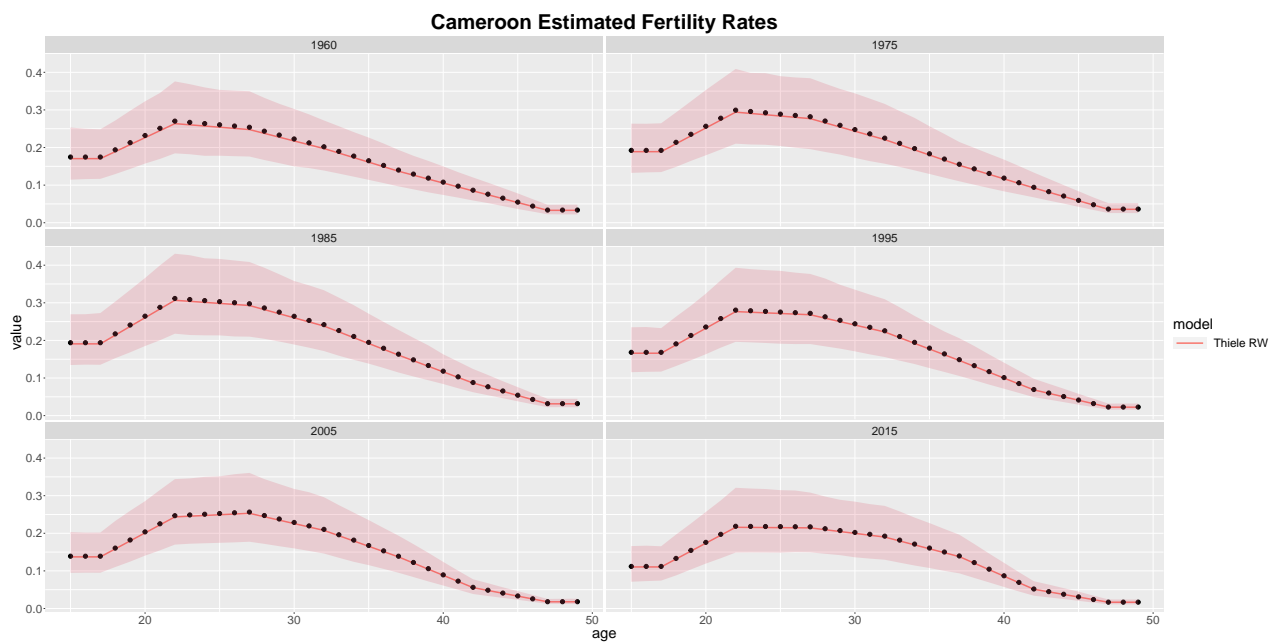

Figure 19: Total Fertility

Figure 20: Mean age at births
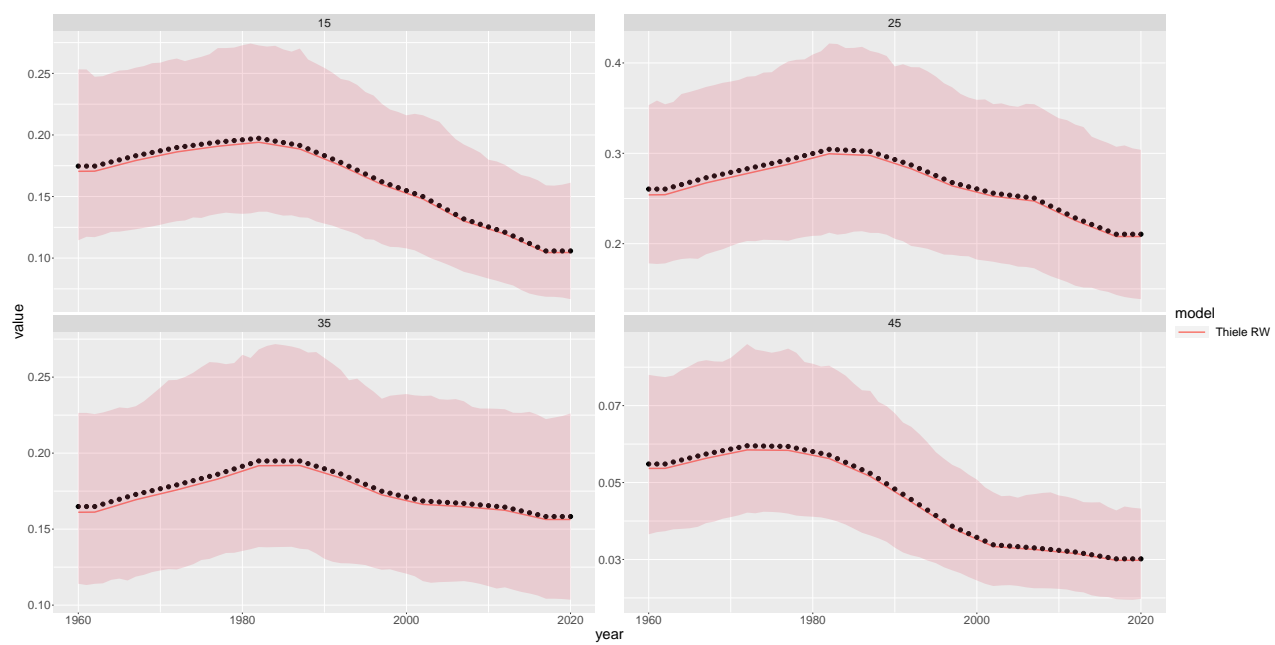

Figure 21: Fertility

Figure 22: Fertility