Burundi

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

## # A tibble: 86 x 3
##      age  `1990`  `2008`
##    <dbl>   <dbl>   <dbl>
## 1      0 103518. 148758.
## 2      1  96768. 144323.
## 3      2  99280. 146587.
## 4      3  98444. 141195.
## 5      4  97191. 137060.
## 6      5  93753. 132500.
## 7      6  89859. 125239.
## 8      7  86191. 118063.
## 9      8  81728. 111556.
## 10     9  75719. 107174.
## # ... with 76 more rows

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

## # A tibble: 18 x 2
##      age  `1979`
##    <dbl>   <dbl>
## 1      0 351217.
## 2      5 283841.
## 3     10 246185.
## 4     15 233752.
## 5     20 205602.
## 6     25 156787.
## 7     30 117321.
## 8     35  96868.
## 9     40  85160.
## 10    45  73888.
## 11    50  61436.
## 12    55  51258.
## 13    60  44370.
## 14    65  34656.
## 15    70  24107.
## 16    75  15919.
## 17    80   8678.
## 18    85   8387.

## [1] "Census Males"

## # A tibble: 86 x 3
##      age  `1990`  `2008`
##    <dbl>   <dbl>   <dbl>
## 1      0 103634. 145551.
## 2      1  96811. 140828.
## 3      2  98842. 142434.
## 4      3  97968. 137049.
## 5      4  96569. 132701.
## 6      5  93065. 127981.
```

```
##  7     6  89092. 120616.
##  8     7  85085. 113402.
##  9     8  80520. 106804.
## 10     9  74582. 102112.
## # ... with 76 more rows
```

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

```
## # A tibble: 18 x 2
##      age  `1979`
##    <dbl>   <dbl>
##  1     0 346363.
##  2     5 281131.
##  3    10 243533.
##  4    15 226268.
##  5    20 194141.
##  6    25 145324.
##  7    30 104707.
##  8    35  81102.
##  9    40  68939.
## 10    45  59998.
## 11    50  49340.
## 12    55  40463.
## 13    60  34783.
## 14    65  28076.
## 15    70  21455.
## 16    75  15673.
## 17    80   9392.
## 18    85  12196.
```

Thiele log-Normal Hump Spline

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

```
##   log_tau2_logpop   log_tau2_logpop   log_tau2_logpop   log_tau2_logpop    log_lambda_fx    log_
##       4.035263021       5.586522390       3.685987490       5.145659762      5.725406510      12
##     log_lambda_tp          tp_slope        tp_params_5       tp_params_10    log_lambda_phi    log_
##       3.355828082       0.001533935       0.264377716       0.745692031     11.341474387      11
## log_lambda_lambda   log_lambda_delta log_lambda_epsilon
##       3.004178607       8.112768438       7.849987937
```
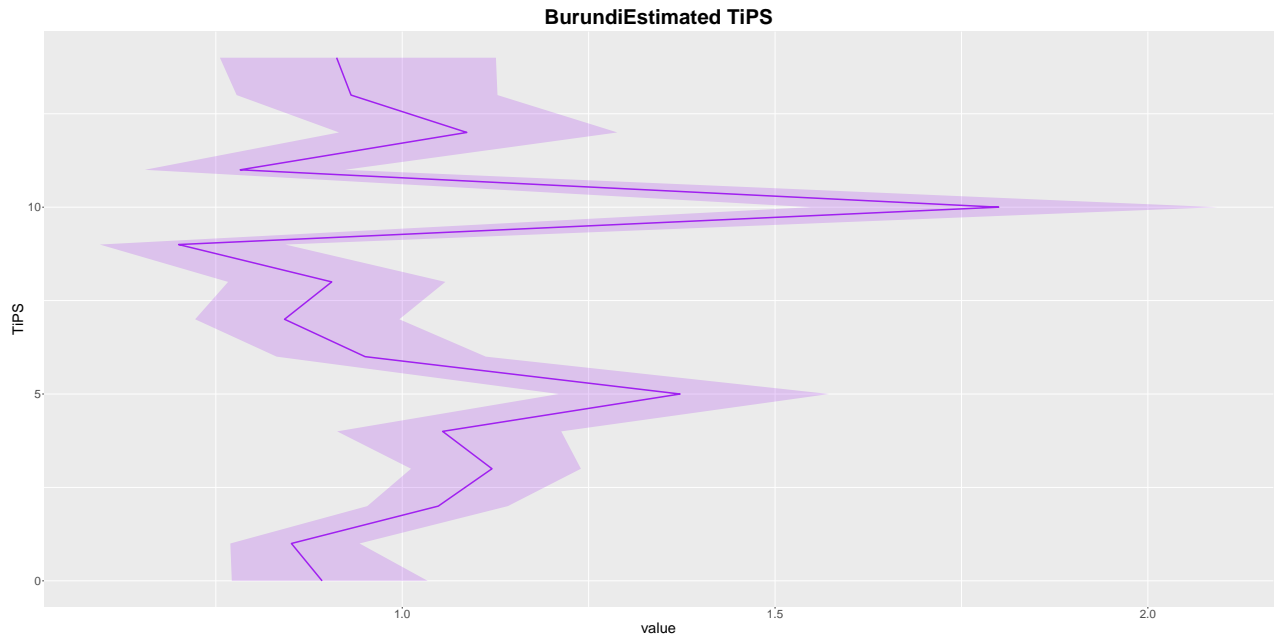
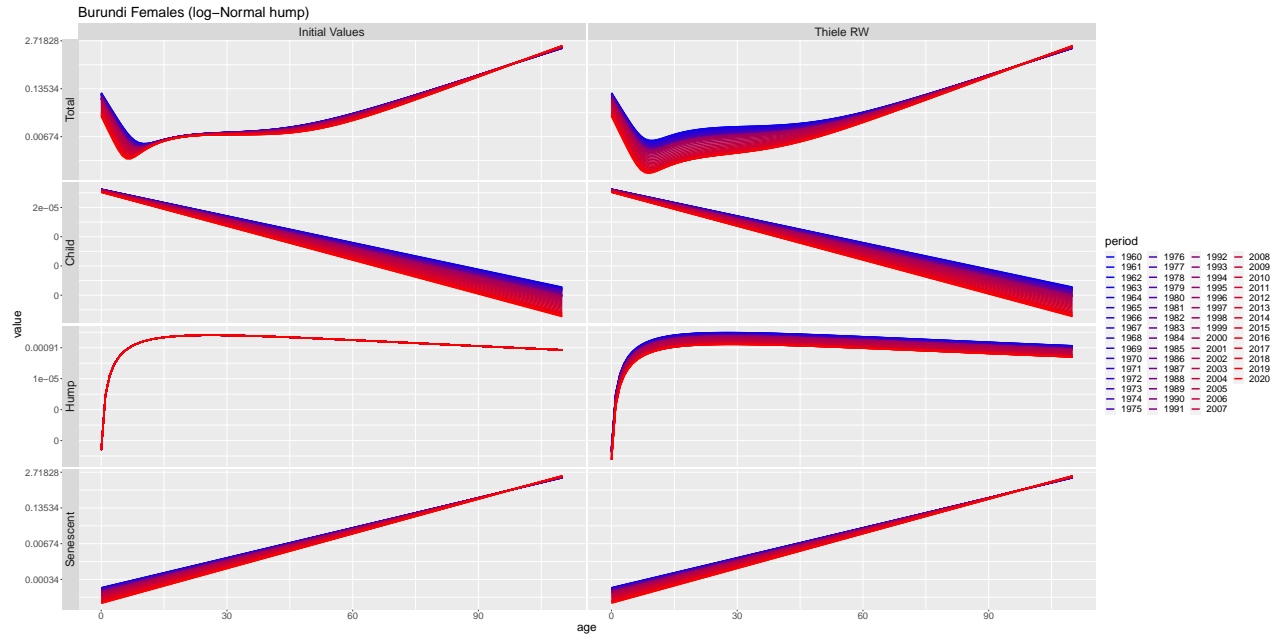Figure 1: Estimated TiPS
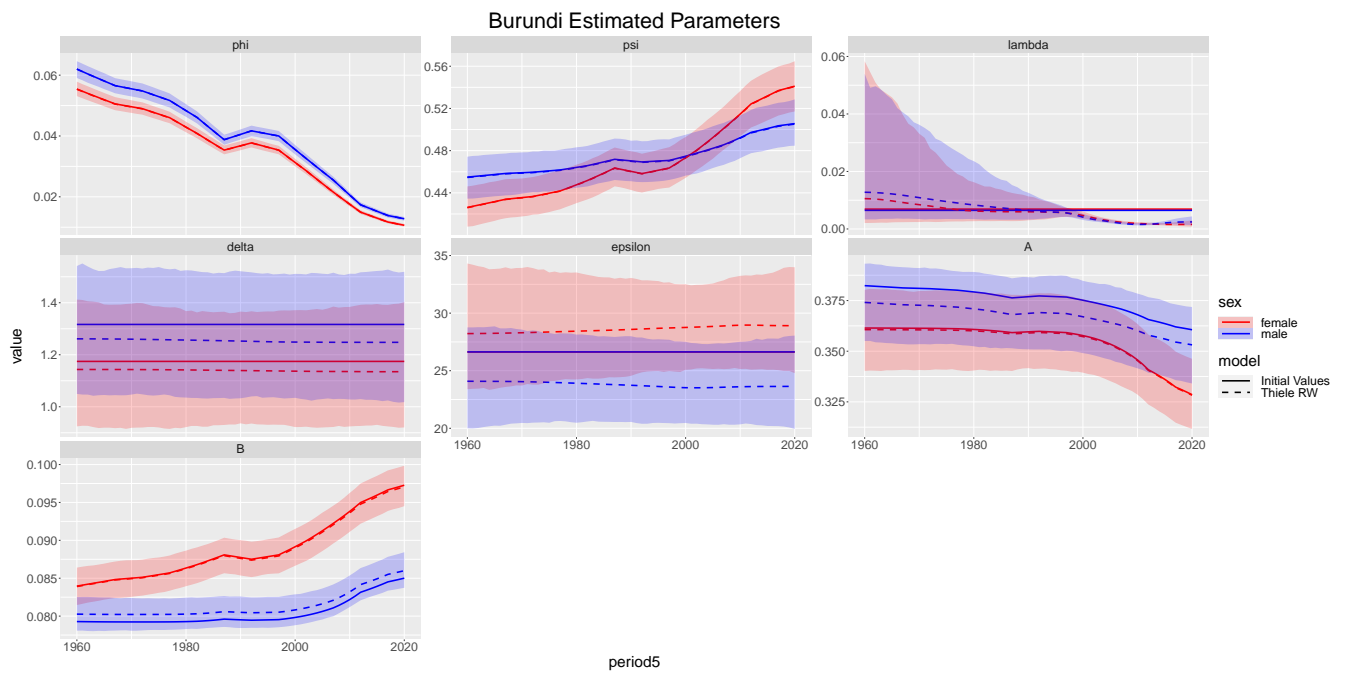
Figure 2: Estimated parameters

Figure 3: Thiele Decomposed

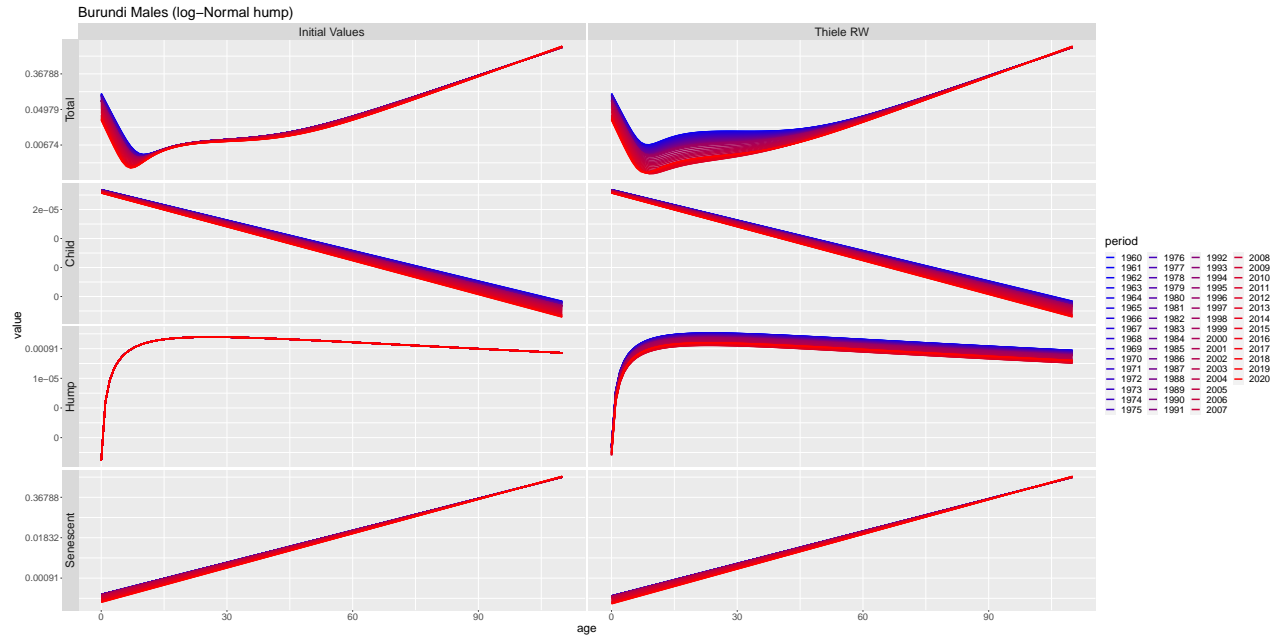
Figure 4: Thiele Decomposed

4
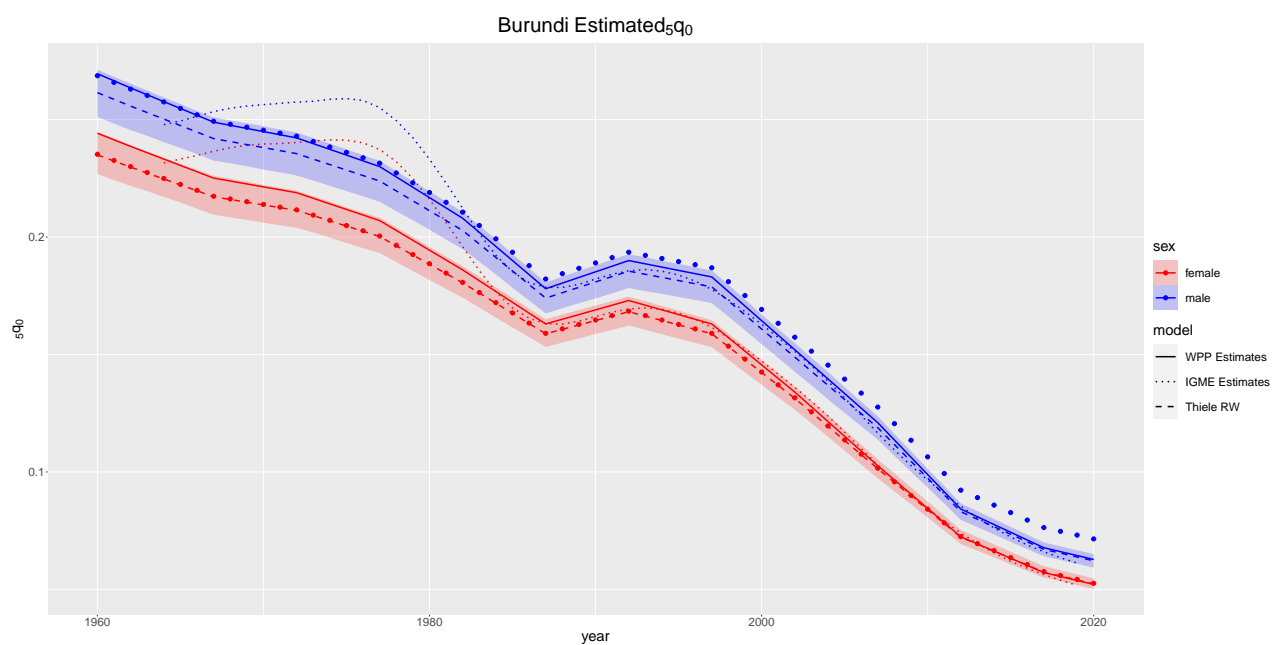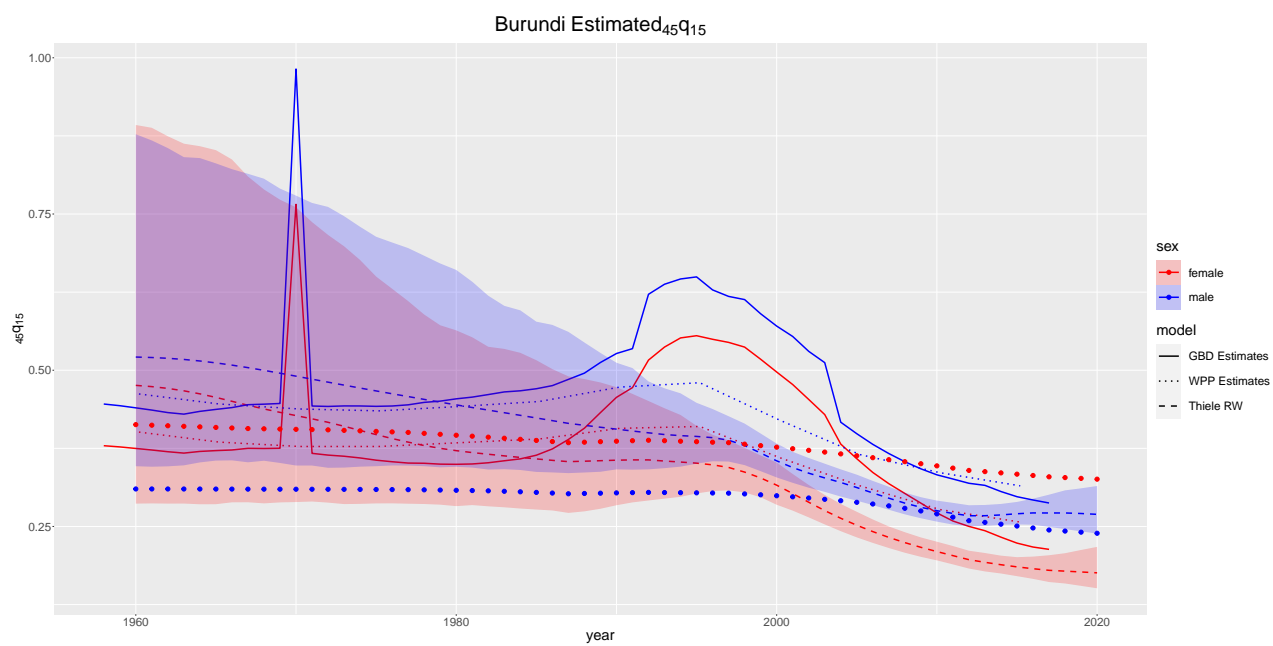
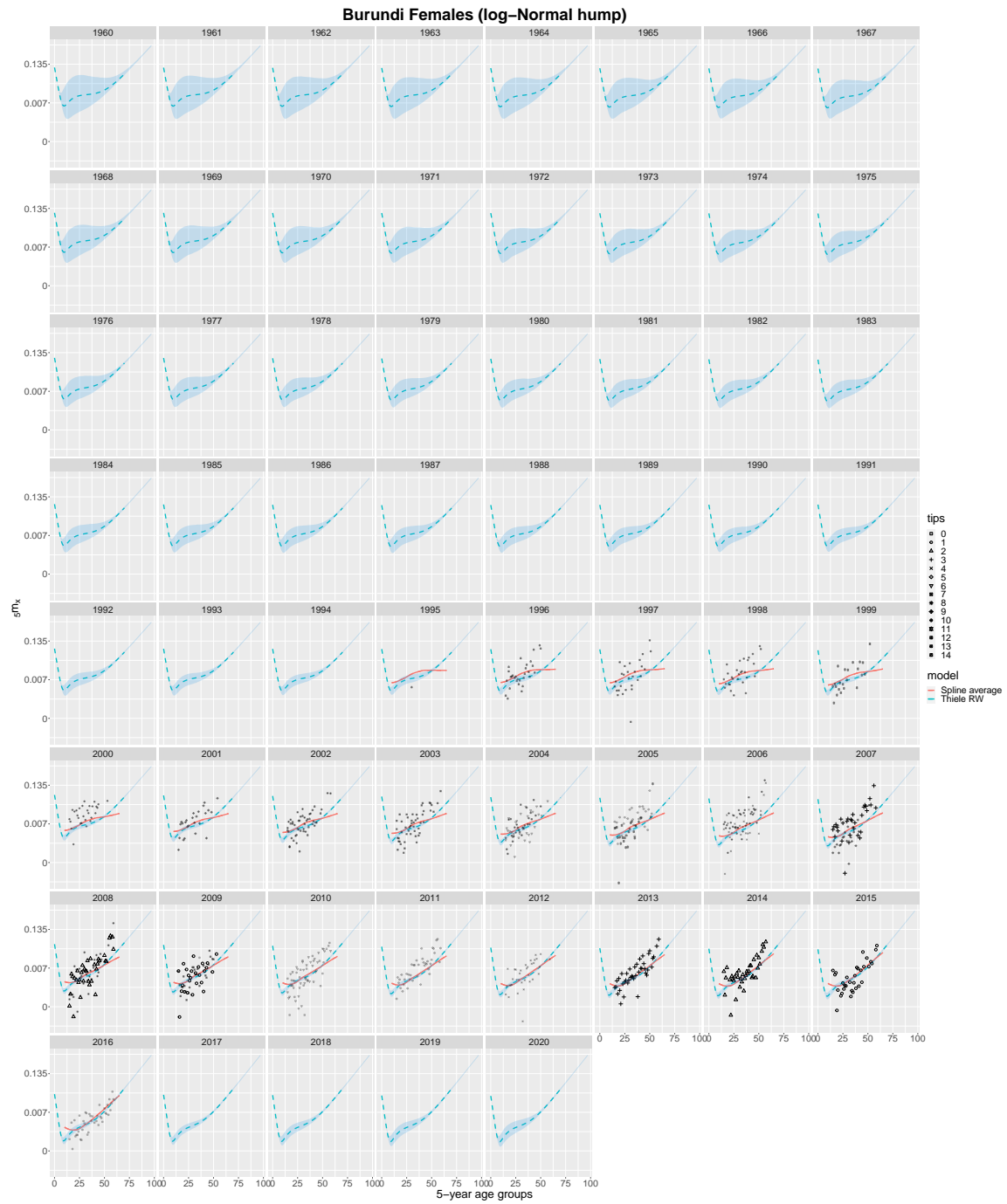Figure 5: Estimated $_5q_0$

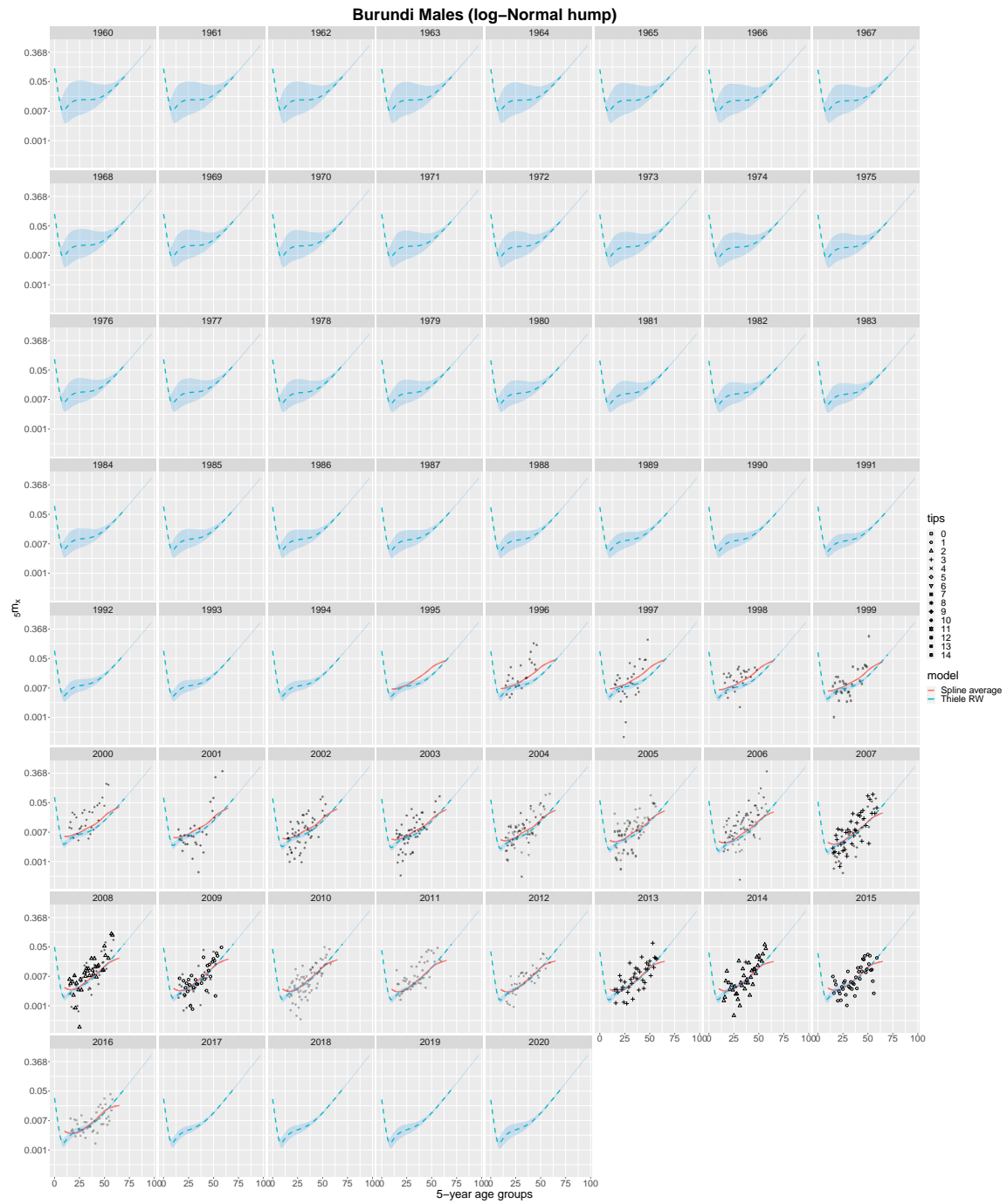Figure 6: Estimated $_{45}q_{15}$

Figure 7: Mortality Schedules
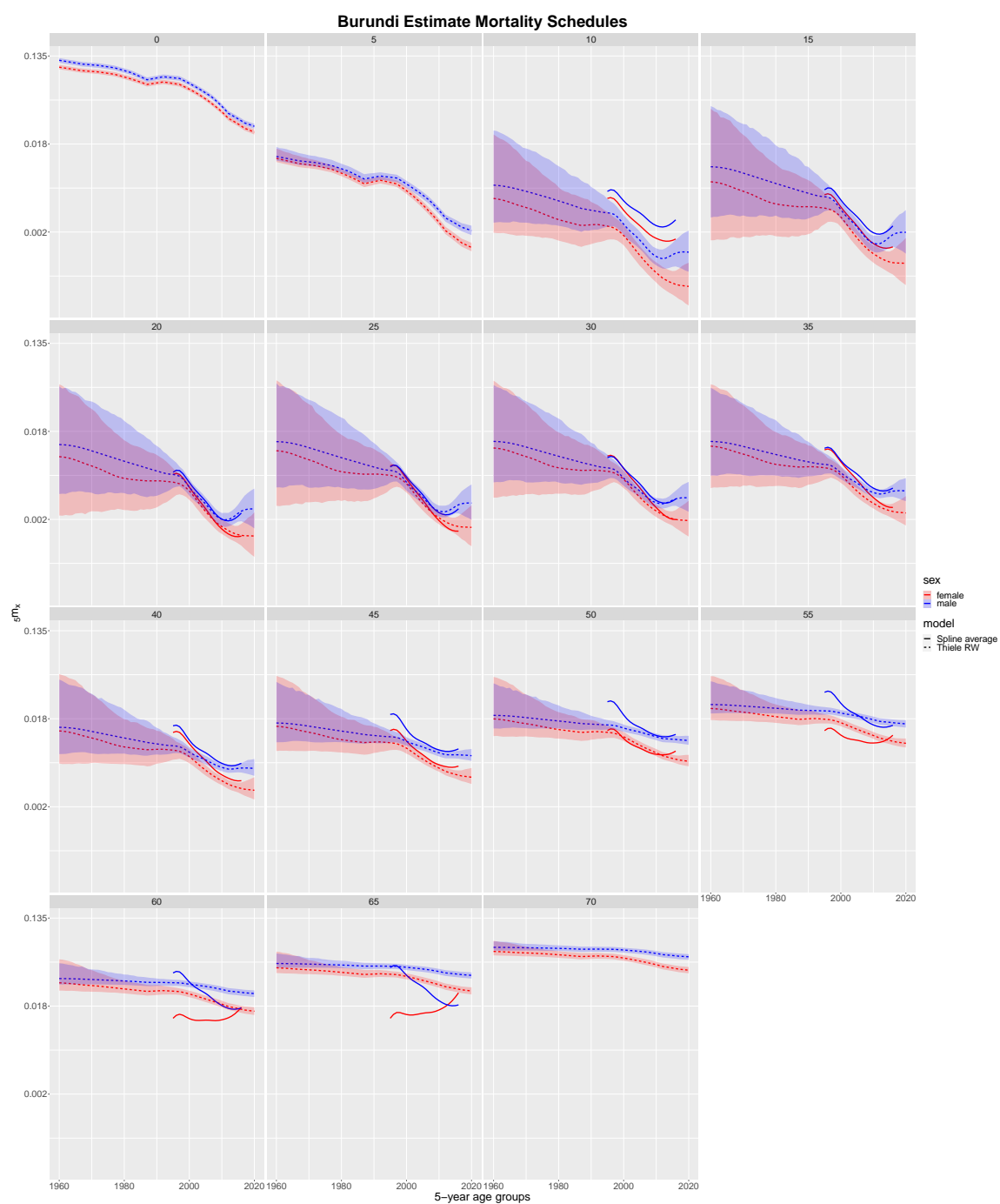
Figure 8: Mortality Schedules
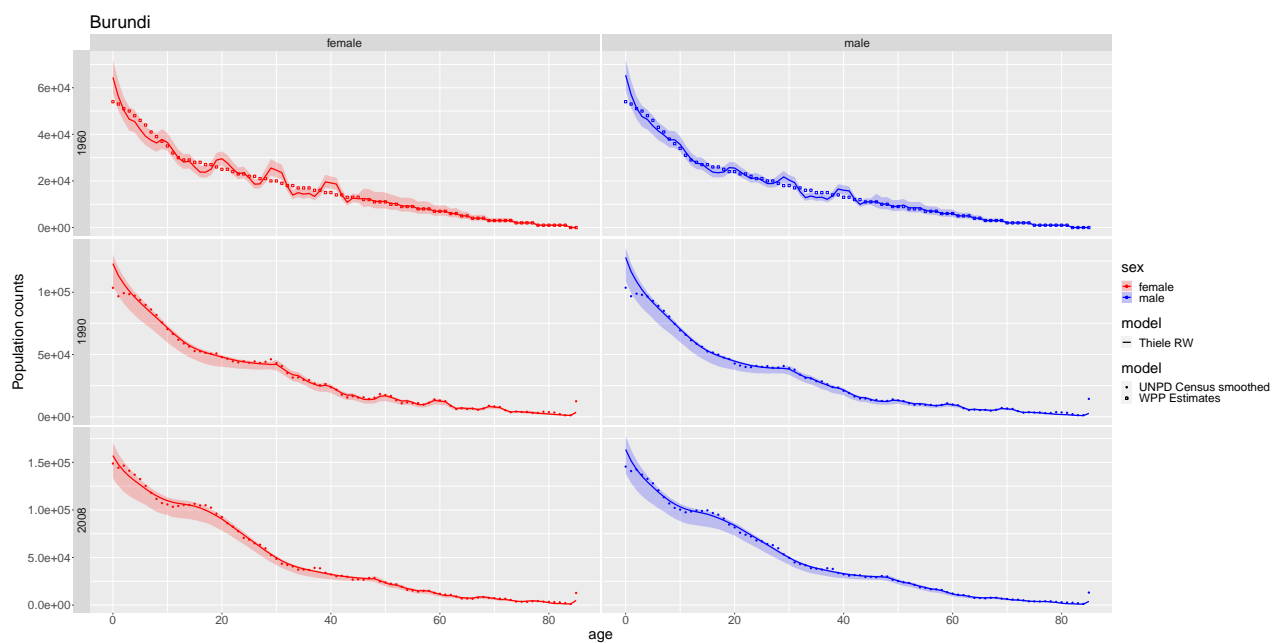
Figure 9: Mortality Schedules
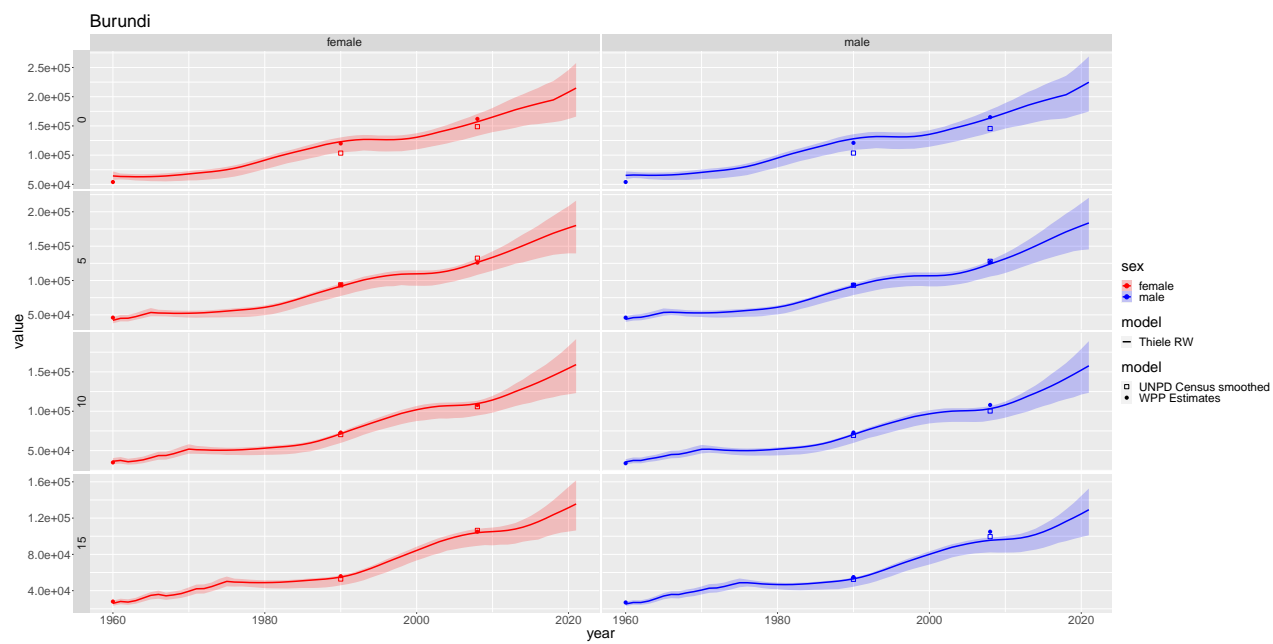
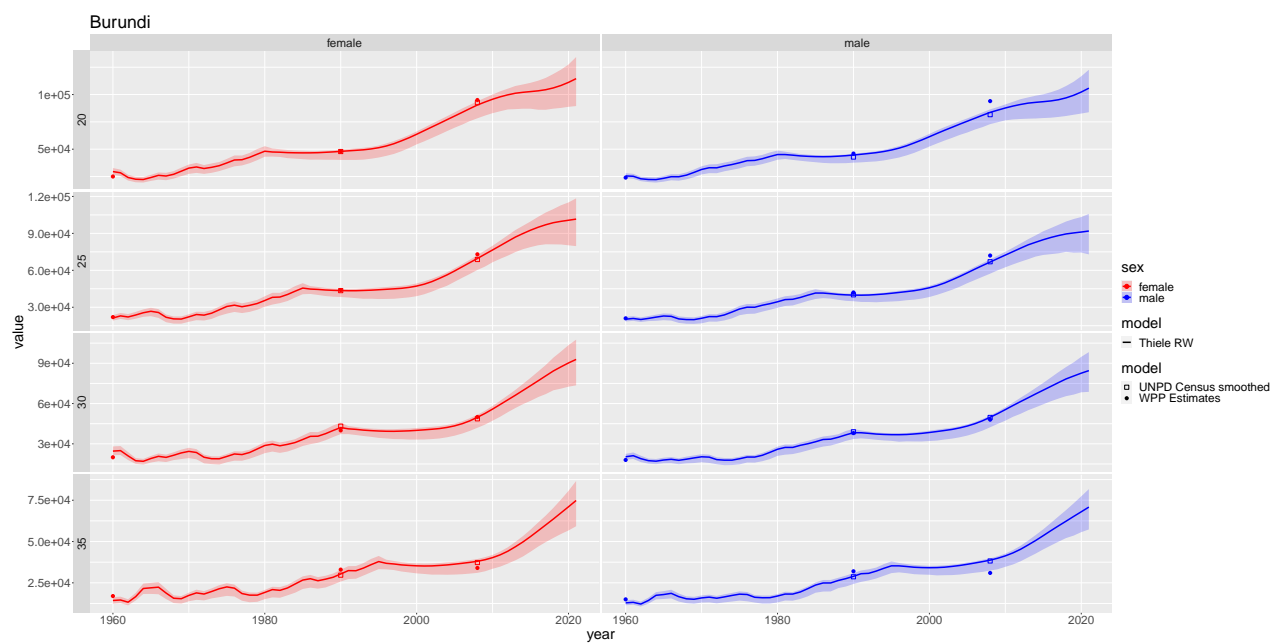Figure 10: Population

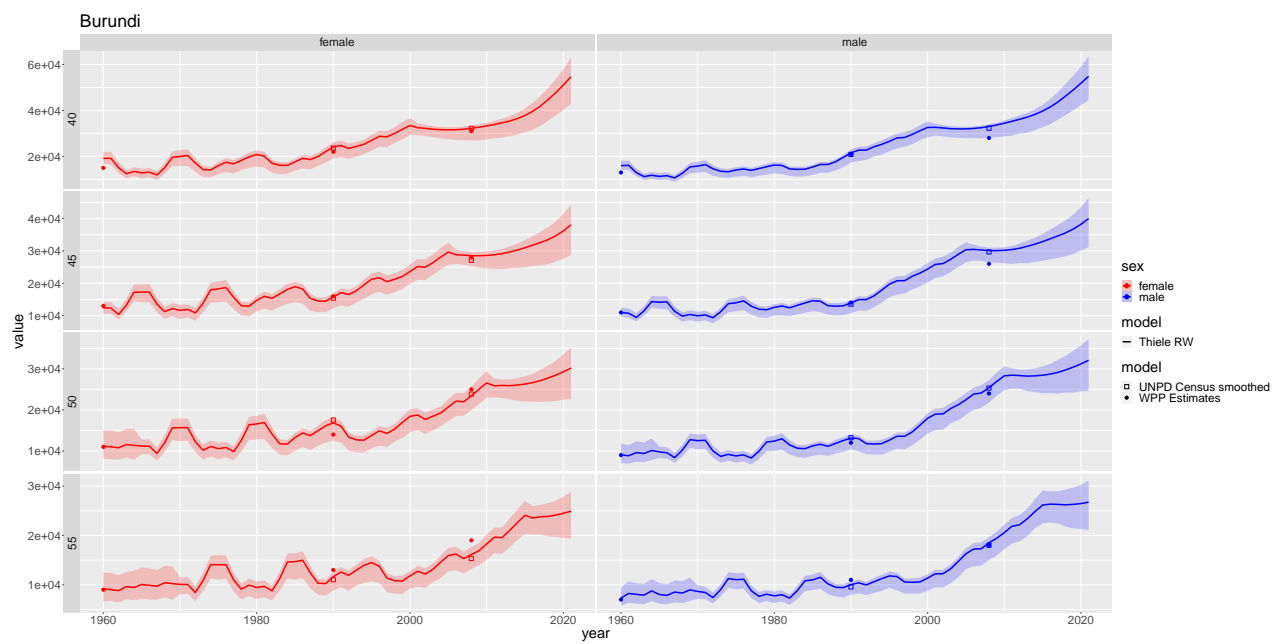Figure 11: Population
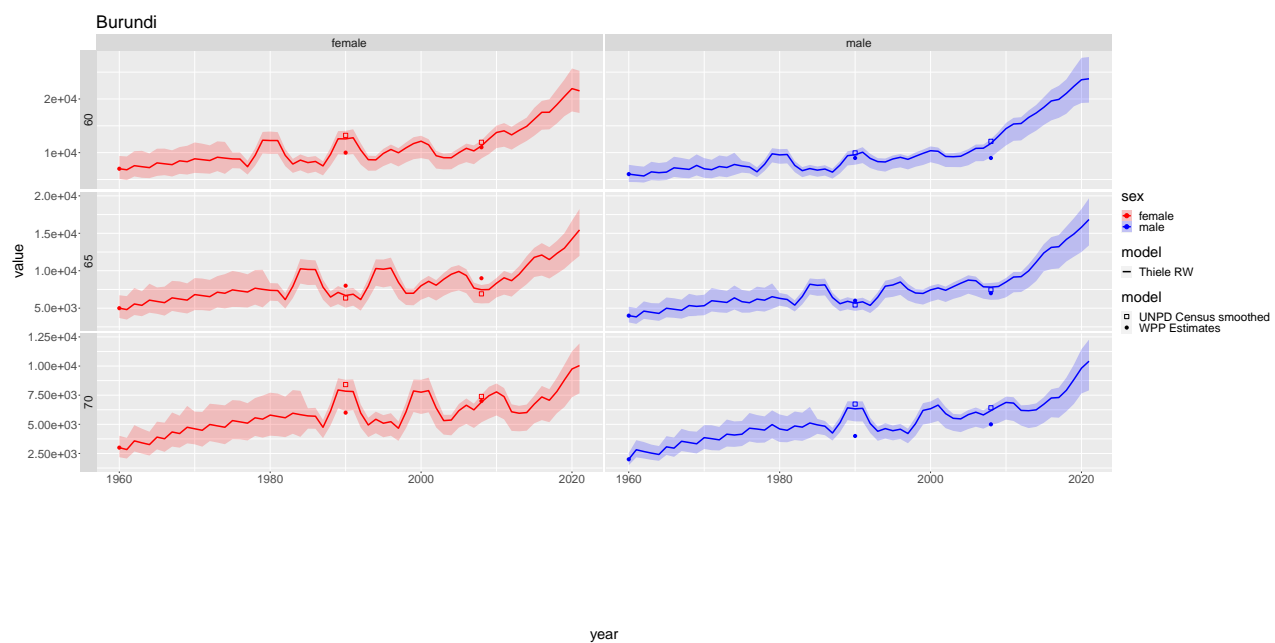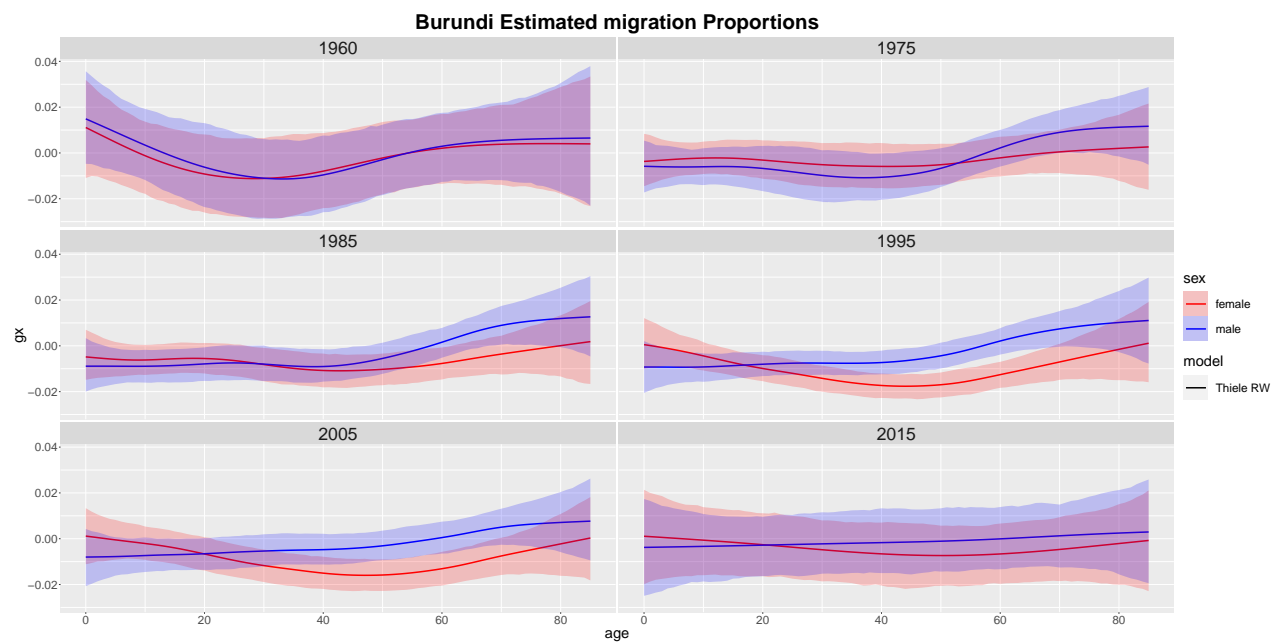
Figure 12: Population

Figure 13: Population
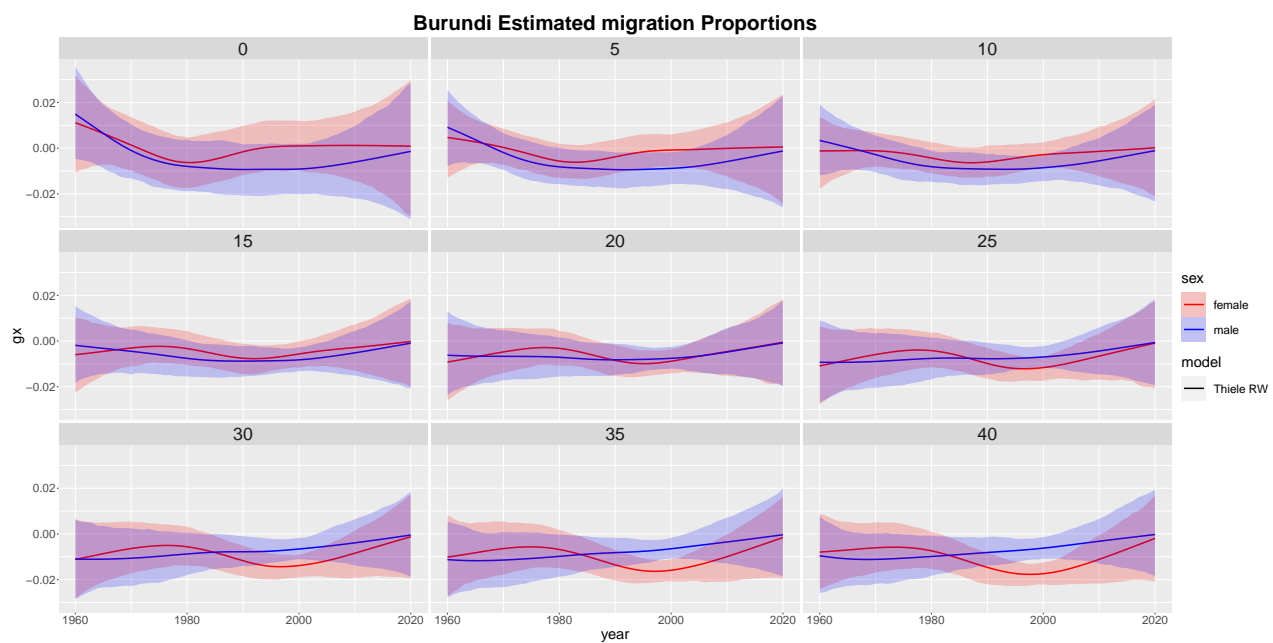
10

Figure 14: Population

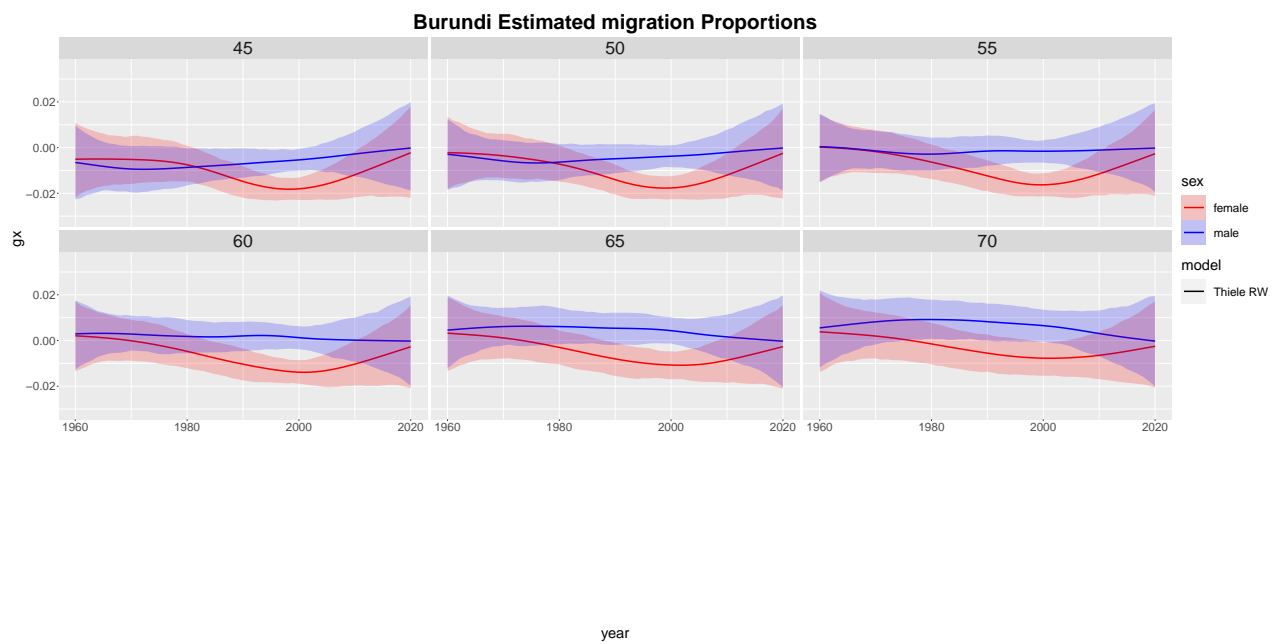Figure 15: Migration

Figure 16: Migration
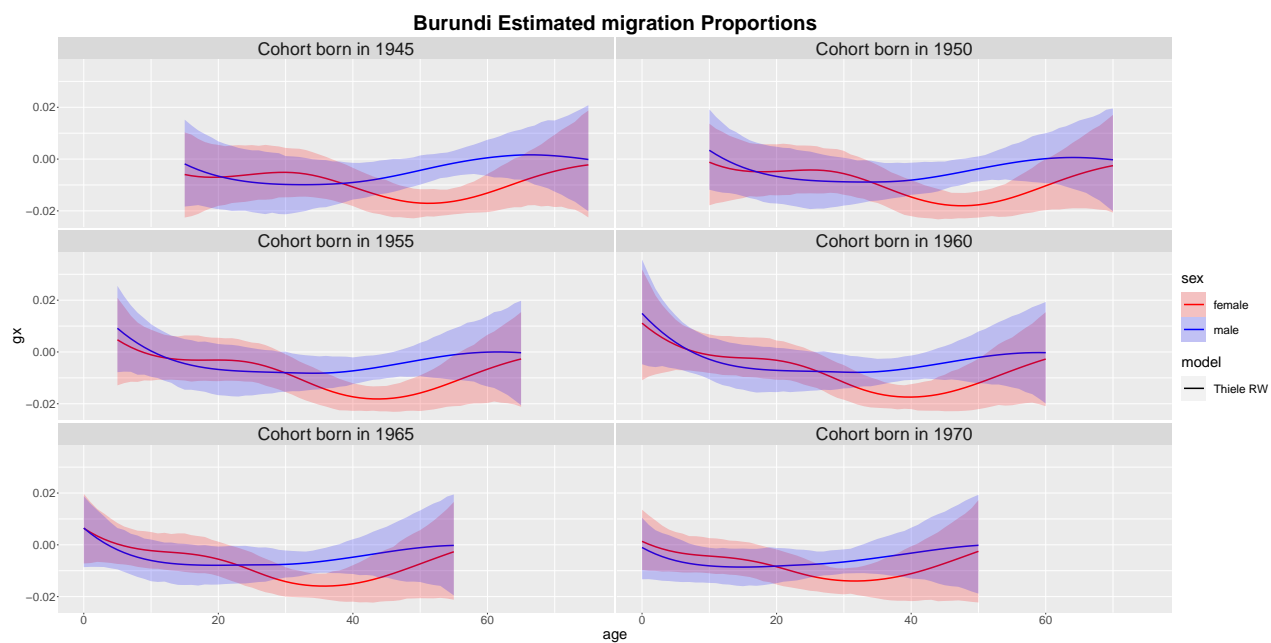
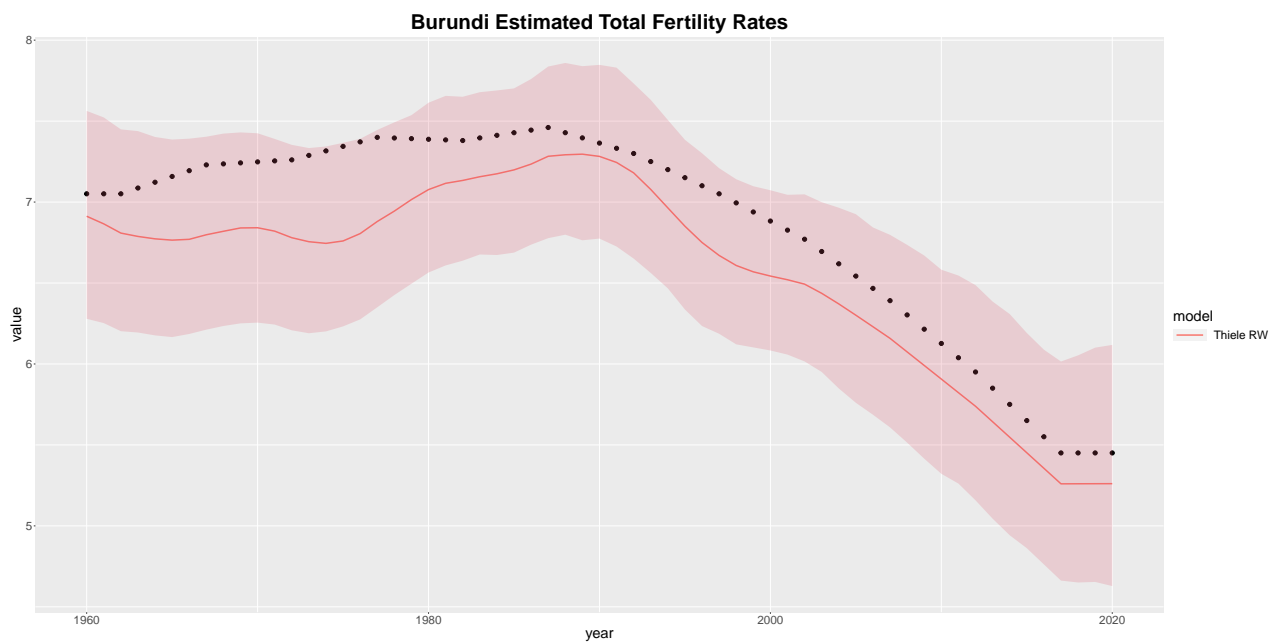

Figure 17: Migration
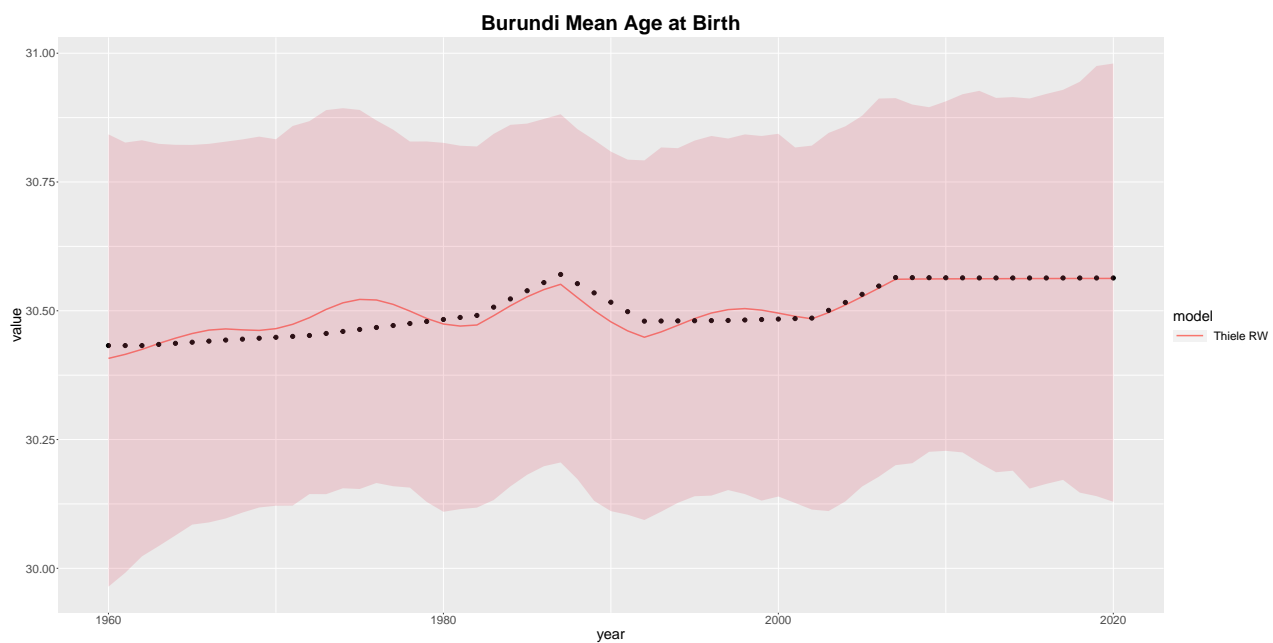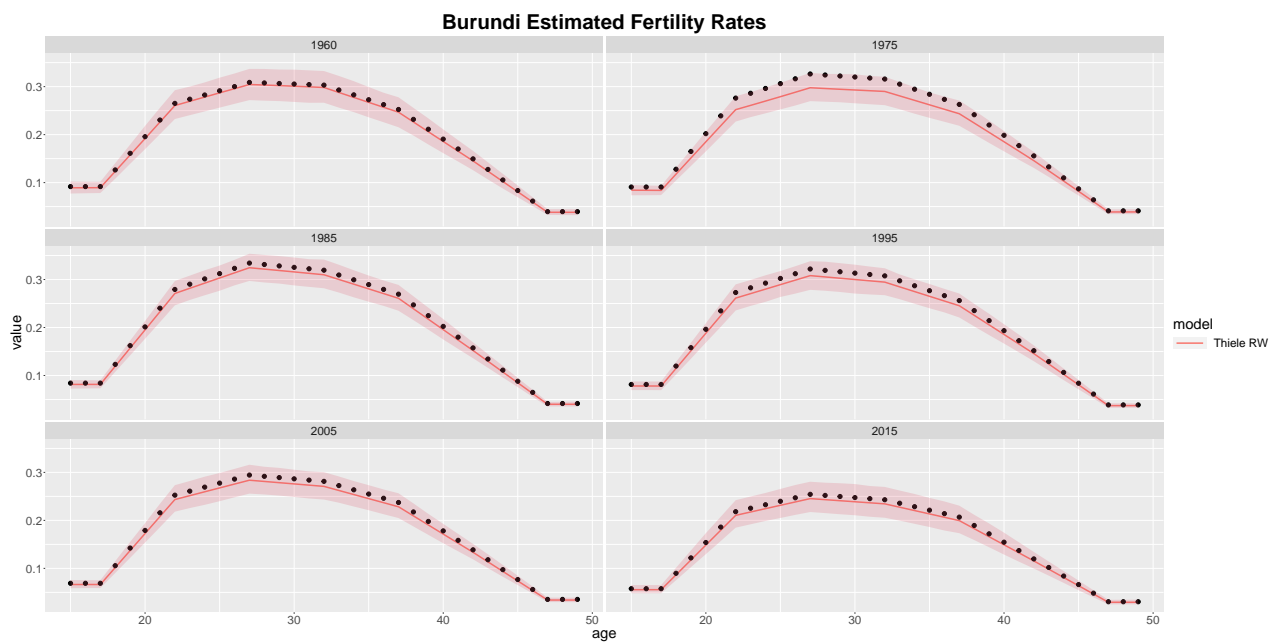
Figure 18: Migration

Figure 19: Total Fertility

Figure 20: Mean age at births
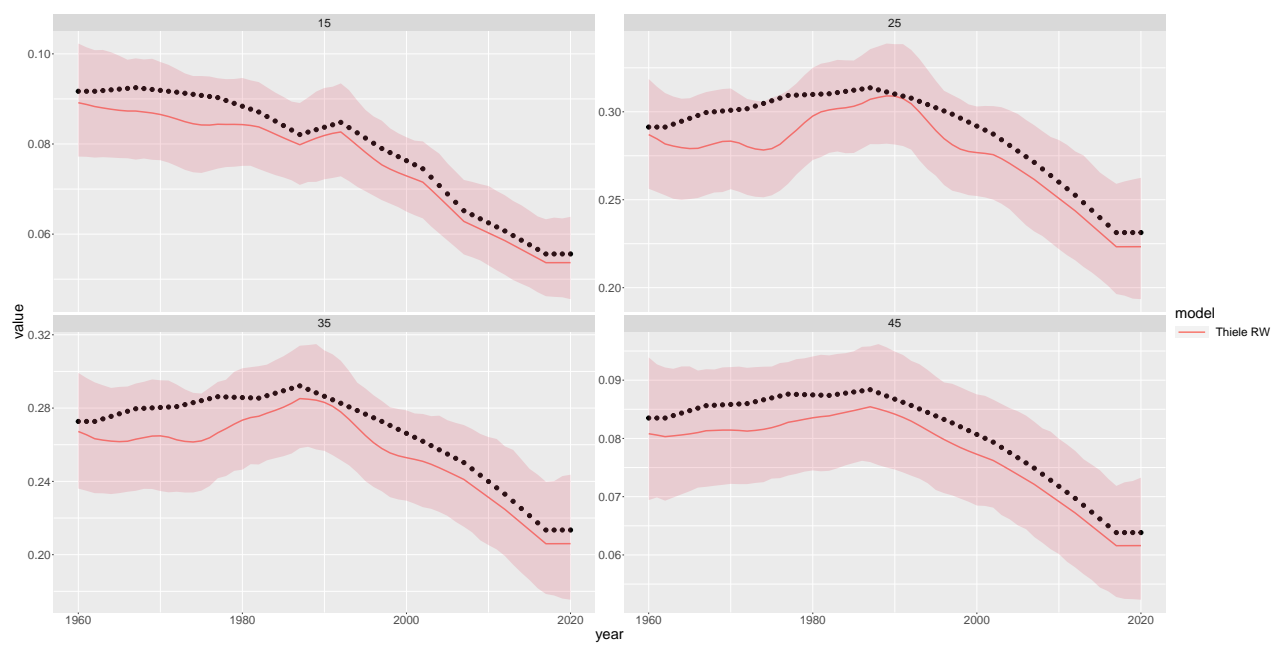

Figure 21: Fertility

Figure 22: Fertility