Senegal

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

## # A tibble: 18 x 4
##     aggr.age  `1988`  `2002`  `2013`
## *      <dbl>   <dbl>   <dbl>   <dbl>
## 1          0  657095  716100 926833.
## 2          5  573472  703724 884205.
## 3         10 459759. 655283. 781084.
## 4         15 379988. 582415. 677577.
## 5         20  318340 485829. 603110.
## 6         25 267352. 394499 529743.
## 7         30 219594. 323248. 439545.
## 8         35 173881. 263528 353976.
## 9         40  136773 212686. 288352.
## 10        45  109514 168203. 238373.
## 11        50  88982. 130956 197784.
## 12        55   72673 101096 157200.
## 13        60   49944  81280. 119593.
## 14        65   46281  64682.  87223.
## 15        70   70069  48960.  63212.
## 16        75      NA  32440.  43530.
## 17        80      NA  17741.  26791.
## 18        85      NA  19638.  27137.

## [1] "Census Males"

## # A tibble: 18 x 4
##     aggr.age  `1988`  `2002`  `2013`
## *      <dbl>   <dbl>   <dbl>   <dbl>
## 1          0  662816  728605 969977.
## 2          5  554176  719472 950470.
## 3         10 439450. 657396. 839277.
## 4         15 349782. 559460 695107.
## 5         20  281996 455336. 578308.
## 6         25  231692 361872 488217.
## 7         30  190505. 286483. 406325.
## 8         35  154484. 231792. 328661.
## 9         40  125626 194048. 262459.
## 10        45 103543. 161778 214857.
## 11        50  87788. 129020 183726.
## 12        55   75121.  99418. 153017.
## 13        60   58463  79959. 118028.
## 14        65   51690  64899.  84264.
## 15        70   70302  49766.  59469.
## 16        75      NA  33960.  40615.
## 17        80      NA  18956.  24673.
## 18        85      NA  15910.  22853.
```

Thiele log-Normal Hump RW

```
##    user  system elapsed
##   32.86    0.72   33.80
```

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

Thiele log-Normal Hump RW (Pop 5-9 to 70-74, DHS 15-19 to 45-49)

```
##    user  system elapsed
## 32.27    0.82   33.26
```

```
## [1] "relative convergence (4)"
```
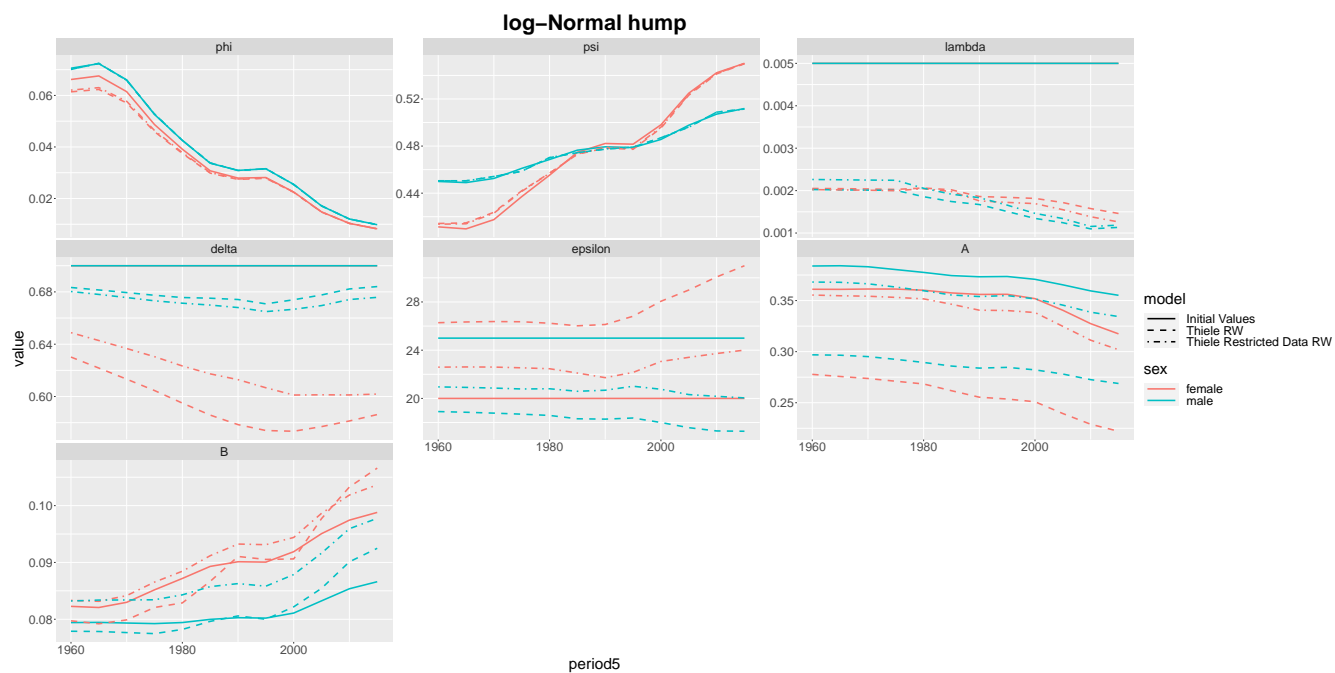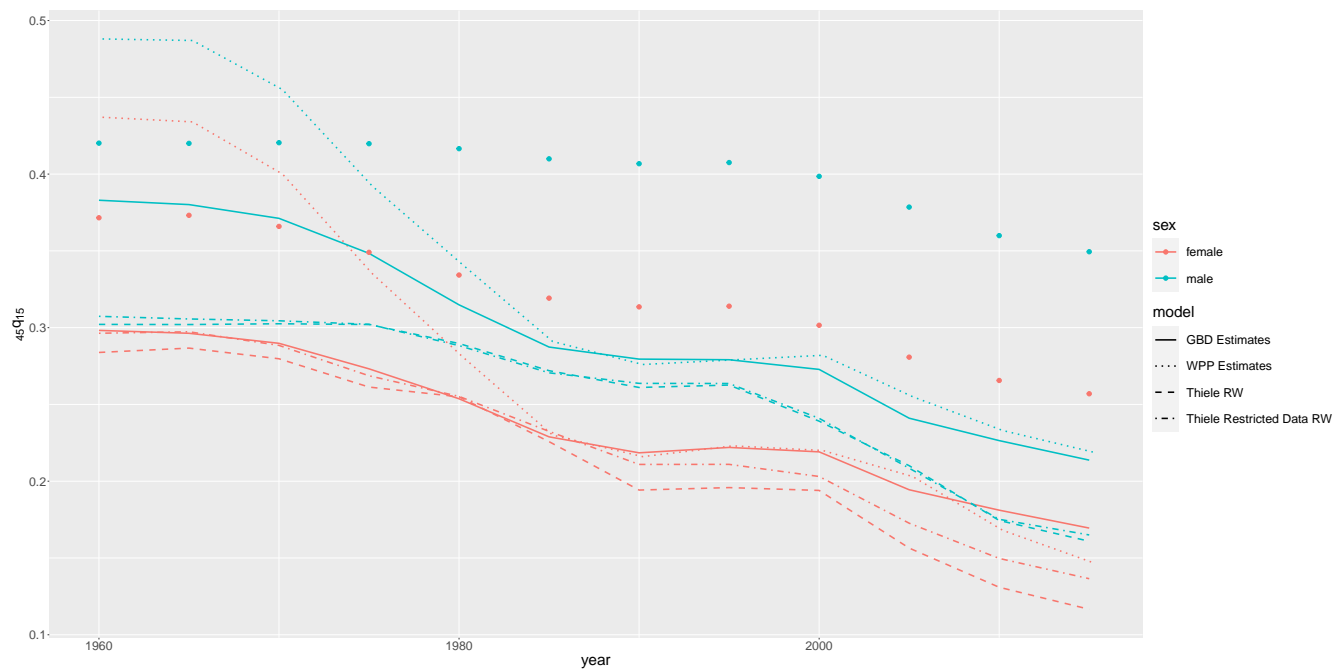
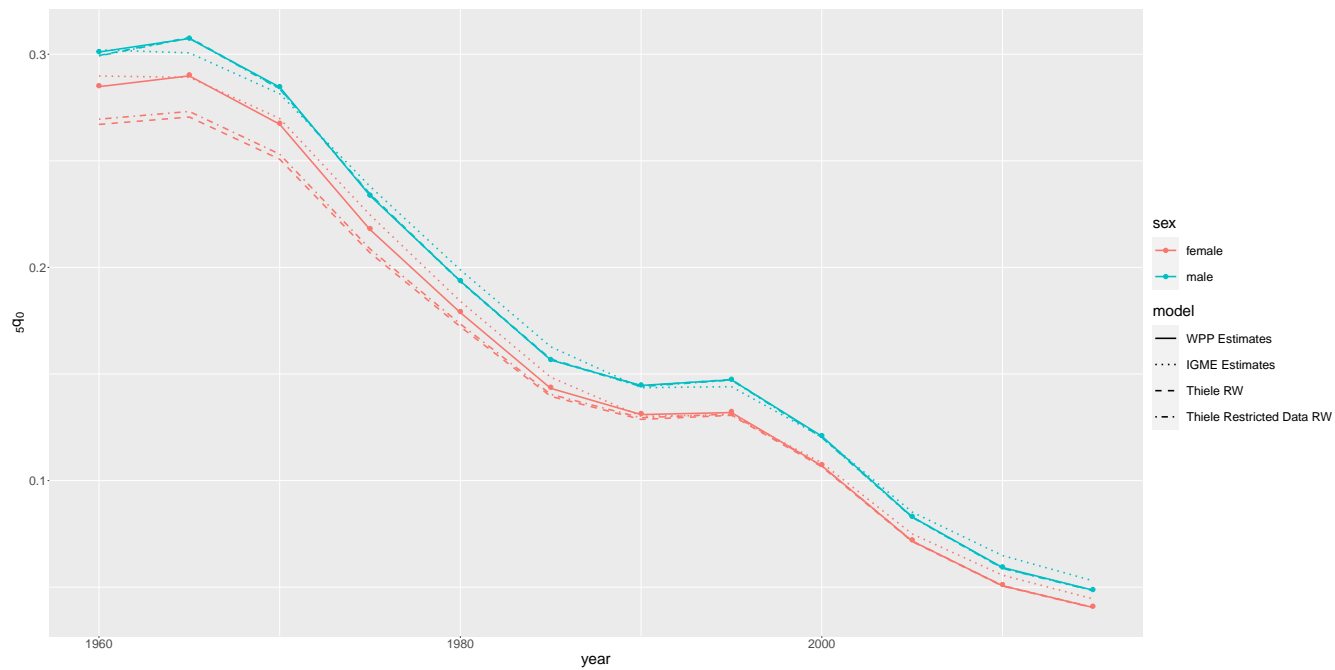Figure 1: Estimated parameters

Figure 2: Estimated $_{45}q_{15}$
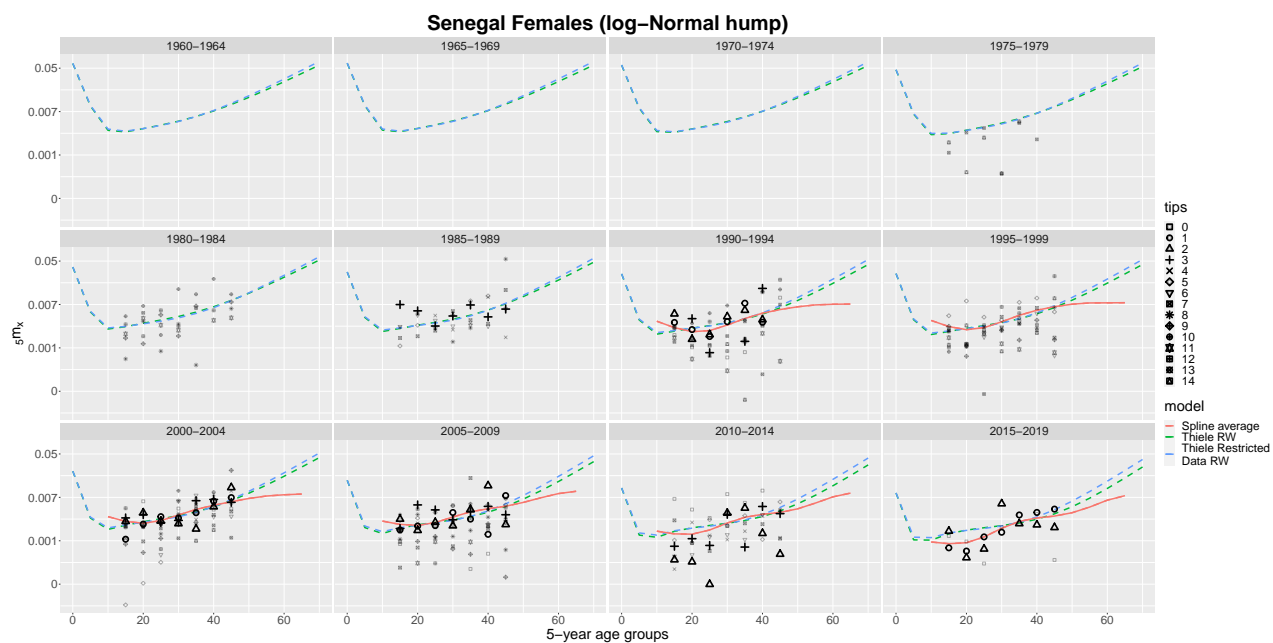

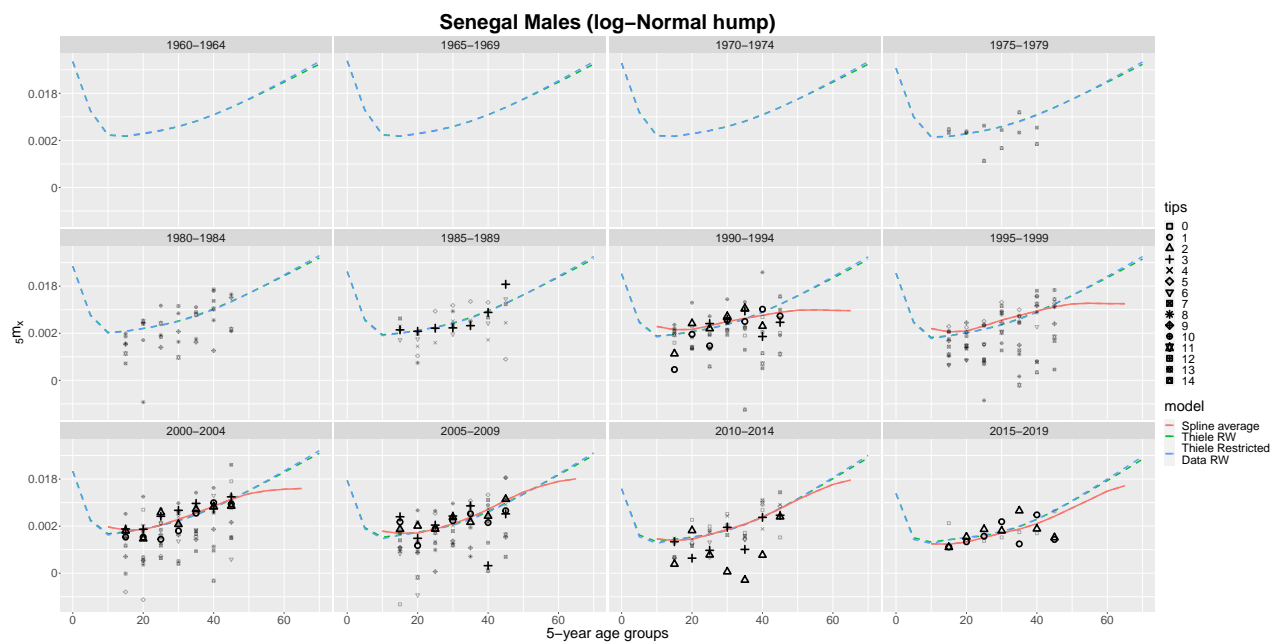Figure 3: Estimated $_5q_0$

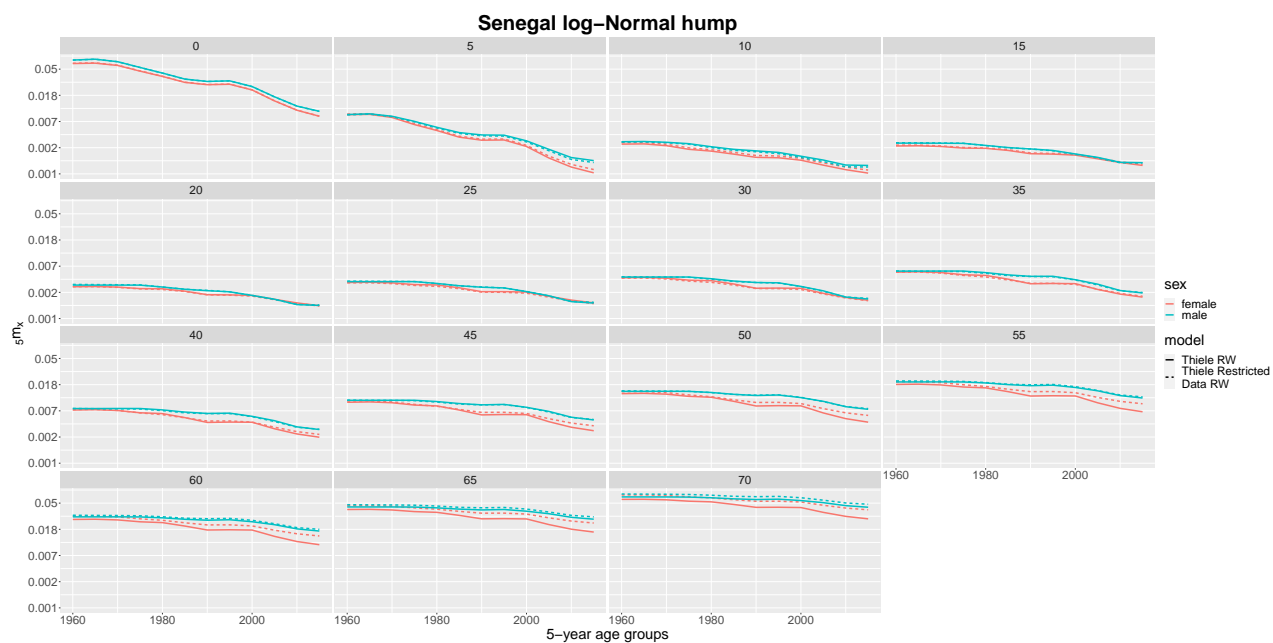Figure 4: Mortality Schedules

Figure 5: Mortality Schedules
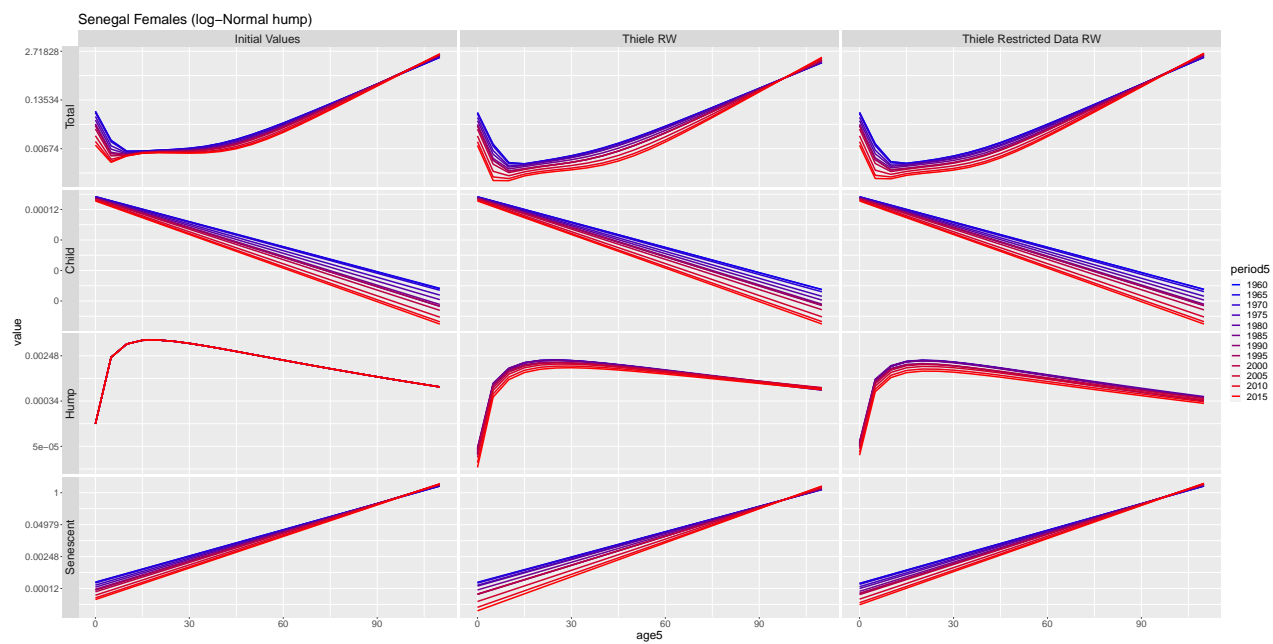
5

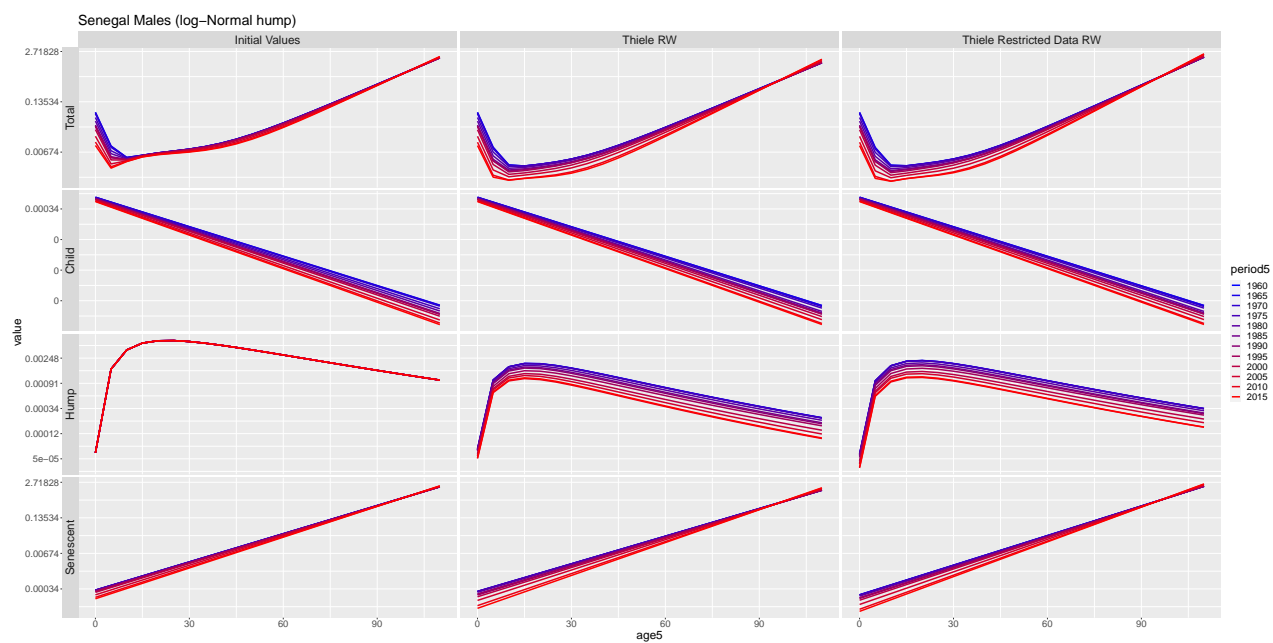Figure 6: Mortality Schedules
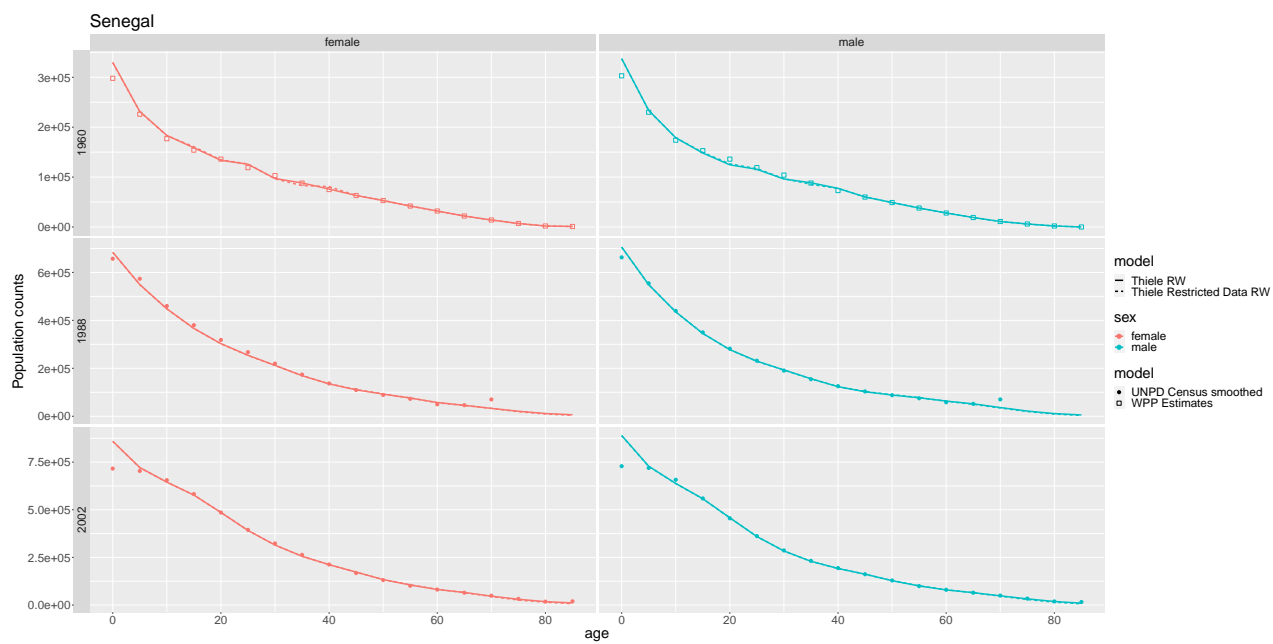

Figure 7: Thiele Decomposed

Figure 8: Thiele Decomposed

Figure 9: Population
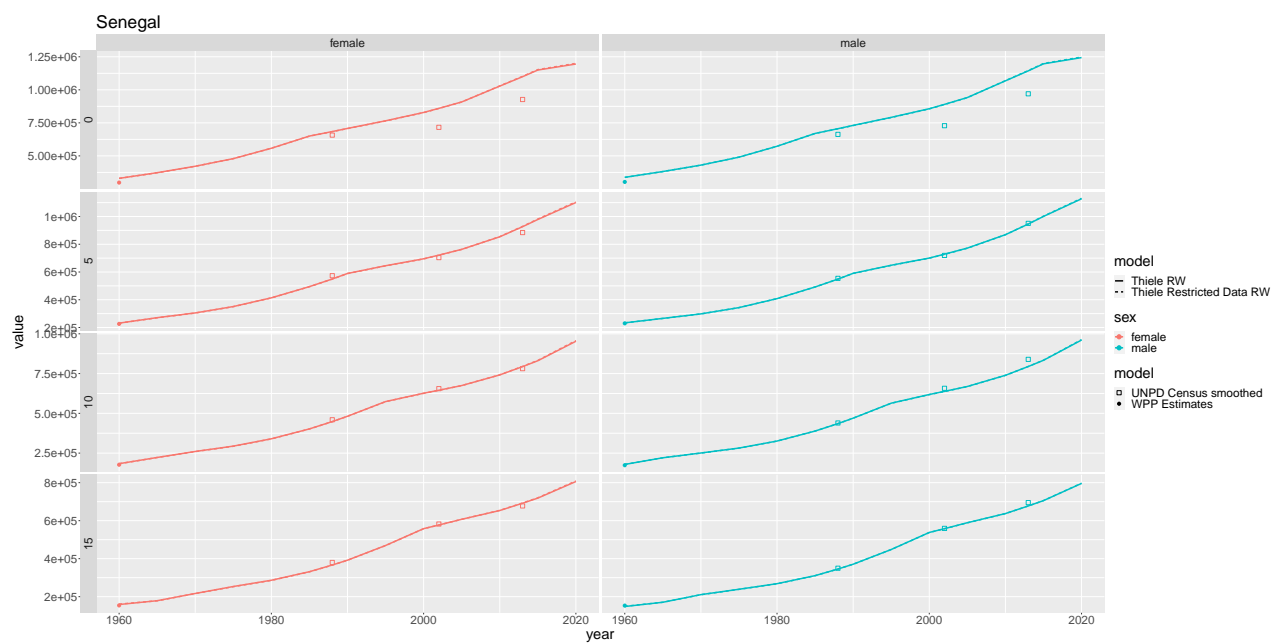
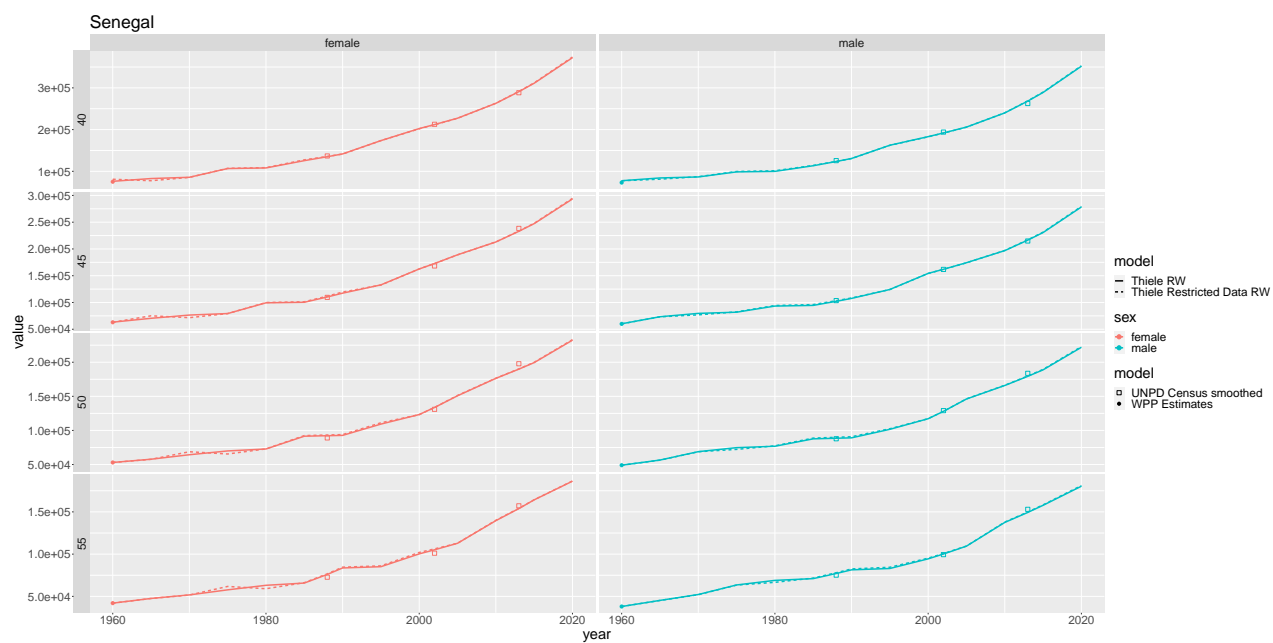Figure 10: Population
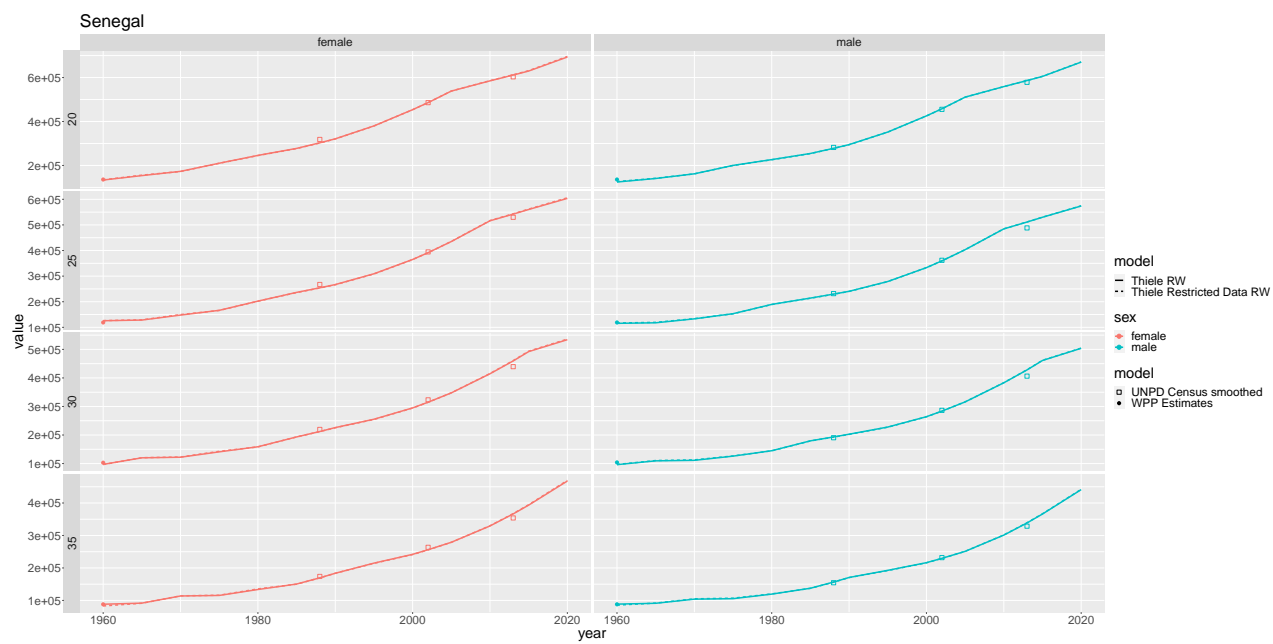
Figure 11: Population
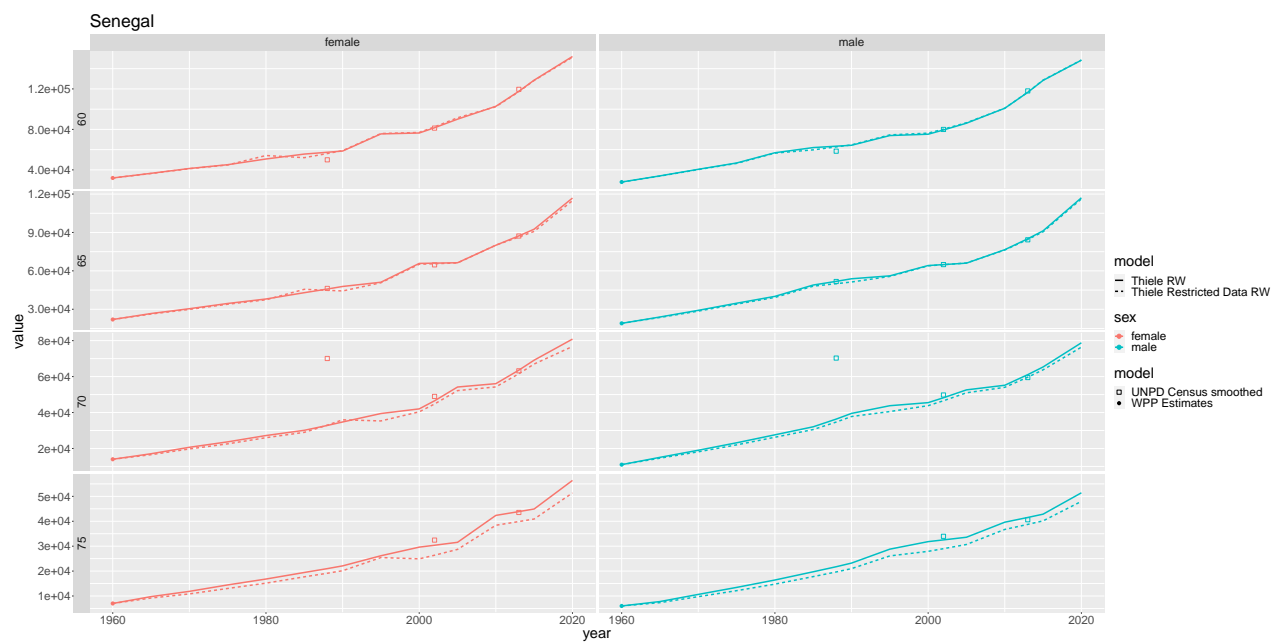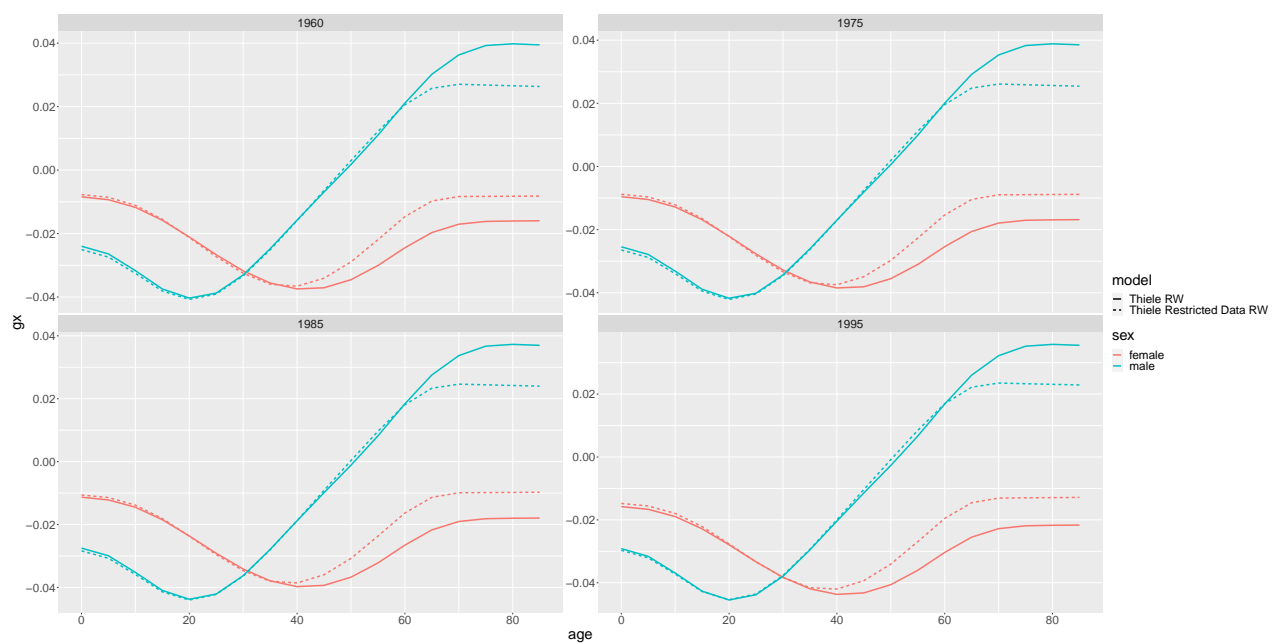
Figure 12: Population

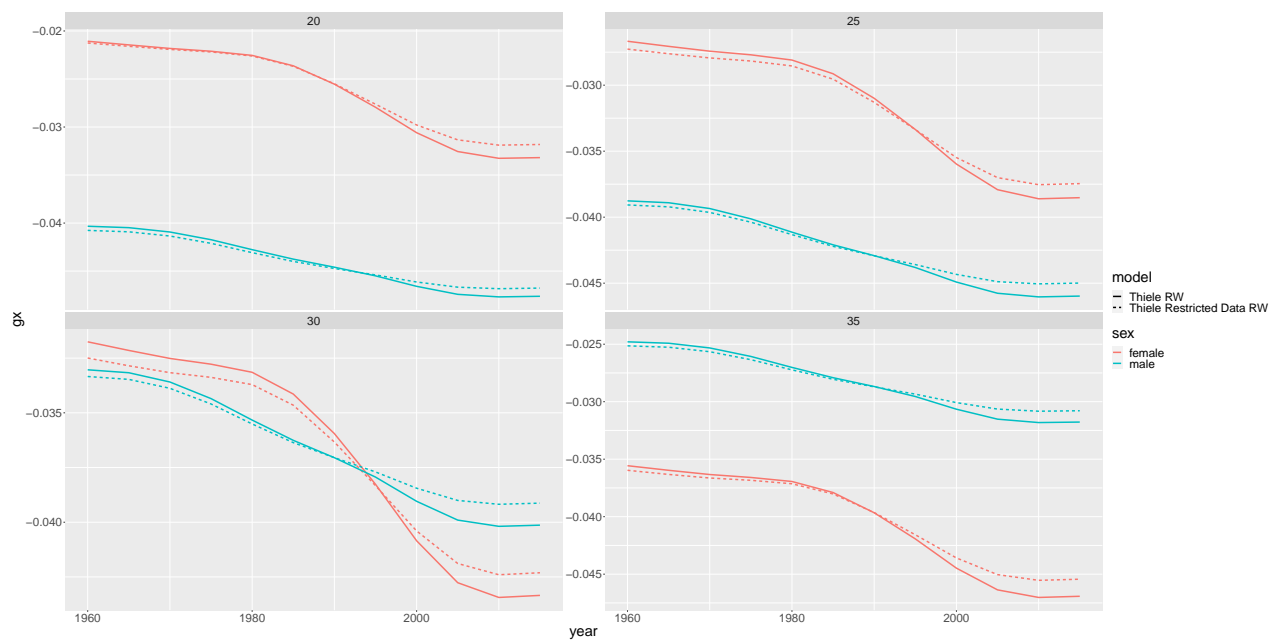Figure 13: Population
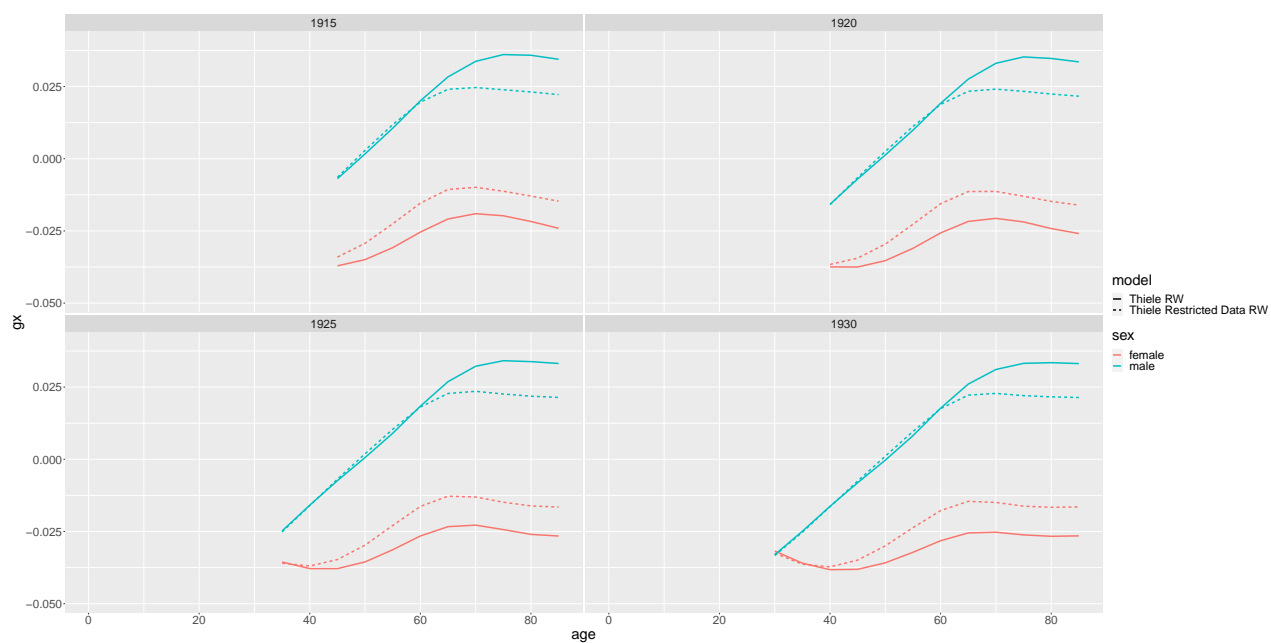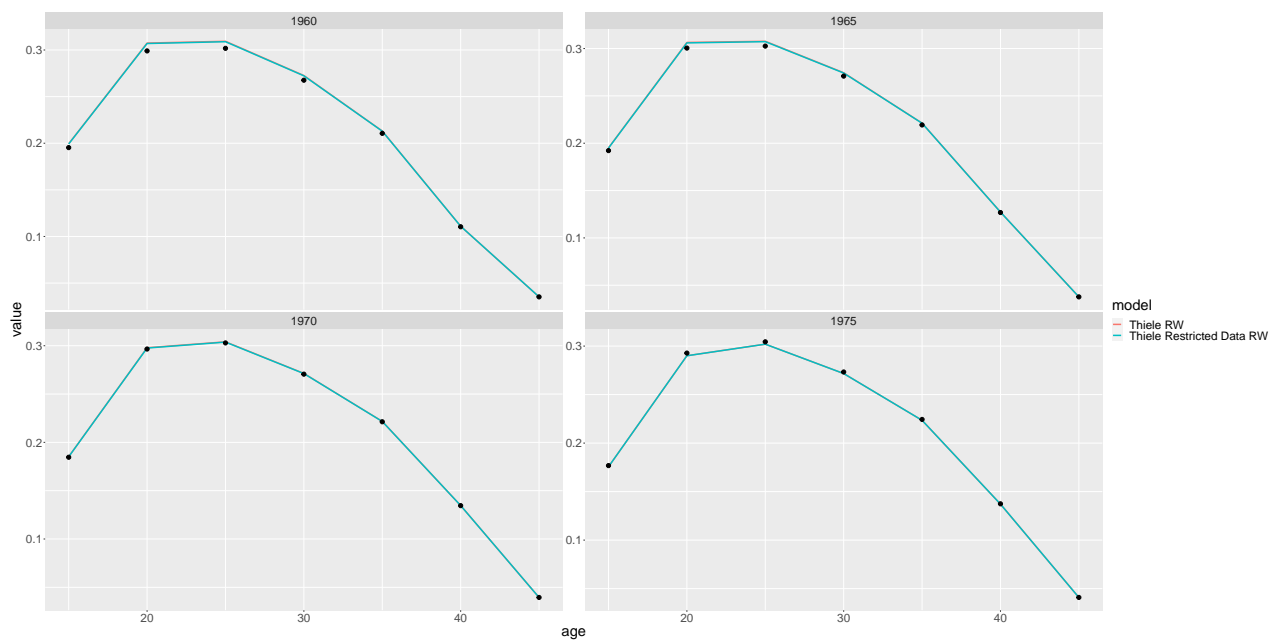
Figure 14: Migration

Figure 15: Migration
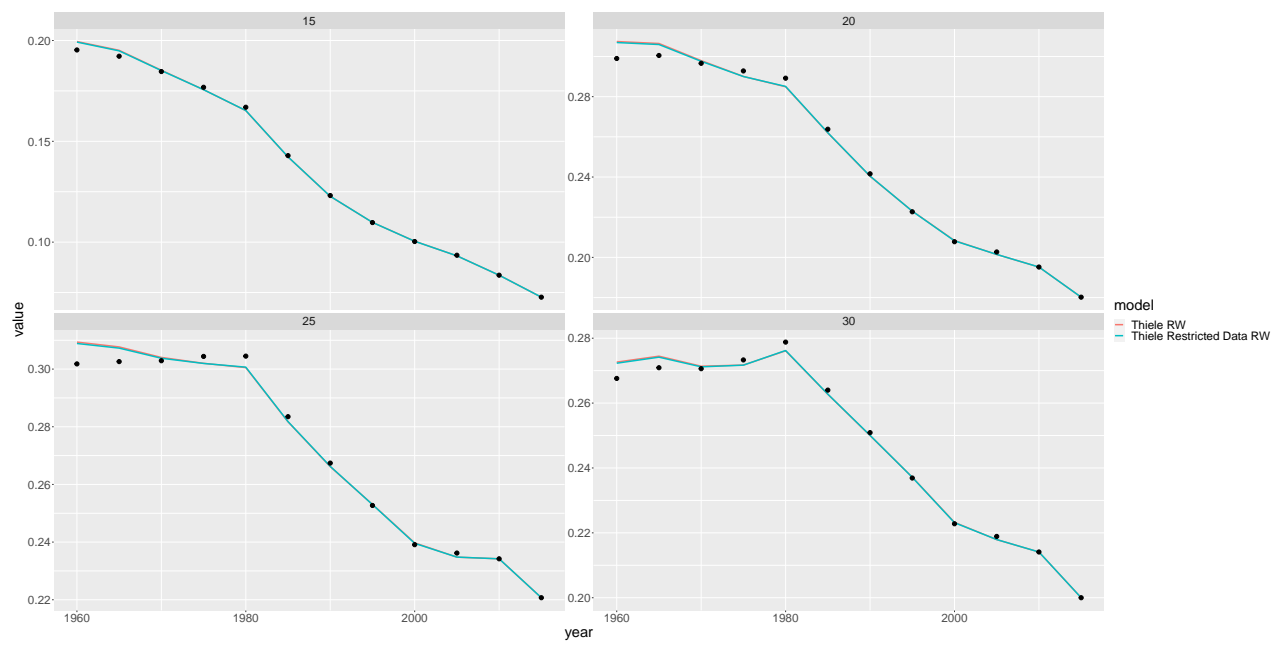
Figure 16: Migration

Figure 17: Fertility

Figure 18: Fertility