

# Zambia

## [1] "Census Females"

## # A tibble: 18 x 6

| ##    | aggr.age | `1969`  | `1980`  | `1990`  | `2000`  | `2010`  |
|-------|----------|---------|---------|---------|---------|---------|
| ##    | *        | <dbl>   | <dbl>   | <dbl>   | <dbl>   | <dbl>   |
| ## 1  | 0        | 398488. | 518793. | 604264. | 830931  | 1131280 |
| ## 2  | 5        | 320748. | 476616. | 563099. | 724775  | 987688  |
| ## 3  | 10       | 240983. | 397502. | 521398. | 624328. | 883894. |
| ## 4  | 15       | 196736. | 319335. | 467530. | 552577  | 775484. |
| ## 5  | 20       | 182925. | 255054. | 383400. | 480275. | 656138  |
| ## 6  | 25       | 165393. | 196620. | 292659. | 381629. | 543766. |
| ## 7  | 30       | 142795. | 158706. | 218409. | 287186. | 428822. |
| ## 8  | 35       | 117739. | 134590. | 164731. | 219323. | 322388  |
| ## 9  | 40       | 92726.  | 111544. | 134696. | 167665. | 239647. |
| ## 10 | 45       | 73906.  | 89524.  | 114821. | 129007. | 185789. |
| ## 11 | 50       | 56777.  | 68471.  | 94142.  | 101823. | 144190. |
| ## 12 | 55       | 40641.  | 51681.  | 72442.  | 80106.  | 107812. |
| ## 13 | 60       | 28653.  | 40807.  | 53263.  | 64630.  | 86021.  |
| ## 14 | 65       | 19278.  | 30199.  | 37091.  | 49164.  | 67975.  |
| ## 15 | 70       | 10352.  | 19972.  | 23907.  | 32270   | 49014.  |
| ## 16 | 75       | 4631.   | 12734.  | 14152.  | 19374   | 32175   |
| ## 17 | 80       | 2674.   | 7293.   | 7598.   | 10931   | 18665.  |
| ## 18 | 85       | 3913.   | 6164.   | 6542.   | 10294   | 18036   |

## [1] "Census Males"

## # A tibble: 18 x 6

| ##    | aggr.age | `1969`  | `1980`  | `1990`  | `2000`  | `2010`  |
|-------|----------|---------|---------|---------|---------|---------|
| ##    | *        | <dbl>   | <dbl>   | <dbl>   | <dbl>   | <dbl>   |
| ## 1  | 0        | 387554. | 514698. | 596079. | 825789  | 1121468 |
| ## 2  | 5        | 320795. | 475023. | 554201. | 721358. | 977176  |
| ## 3  | 10       | 245341. | 391278. | 508589. | 611265. | 865023  |
| ## 4  | 15       | 180559. | 295698. | 438289. | 511000. | 732268. |
| ## 5  | 20       | 142234. | 220499. | 341120. | 426847. | 588231  |
| ## 6  | 25       | 126158. | 168133. | 259595. | 355581  | 493510. |
| ## 7  | 30       | 119935. | 134902. | 204263. | 284534. | 426331. |
| ## 8  | 35       | 110615. | 113591. | 157810. | 216582. | 347459  |
| ## 9  | 40       | 95285.  | 101126. | 126181. | 164050  | 261744. |
| ## 10 | 45       | 80149.  | 90884.  | 106980. | 126000. | 191818. |
| ## 11 | 50       | 67500.  | 74835.  | 90866.  | 97523.  | 140823. |
| ## 12 | 55       | 54235.  | 57907.  | 75059.  | 76084.  | 102625. |
| ## 13 | 60       | 37807.  | 46169.  | 58354.  | 62440   | 77534.  |
| ## 14 | 65       | 23834.  | 35162.  | 42995.  | 51186.  | 58968.  |
| ## 15 | 70       | 12626.  | 23709.  | 30459.  | 37483   | 44158.  |
| ## 16 | 75       | 5209.   | 14831.  | 19120.  | 24245.  | 31093   |
| ## 17 | 80       | 3009.   | 7286.   | 8367.   | 13311   | 18680.  |
| ## 18 | 85       | 4663.   | 6545.   | 7258.   | 10667   | 15920   |

*Thiele log-Normal Hump RW*

| ## | user  | system | elapsed |
|----|-------|--------|---------|
| ## | 32.51 | 0.51   | 33.11   |

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

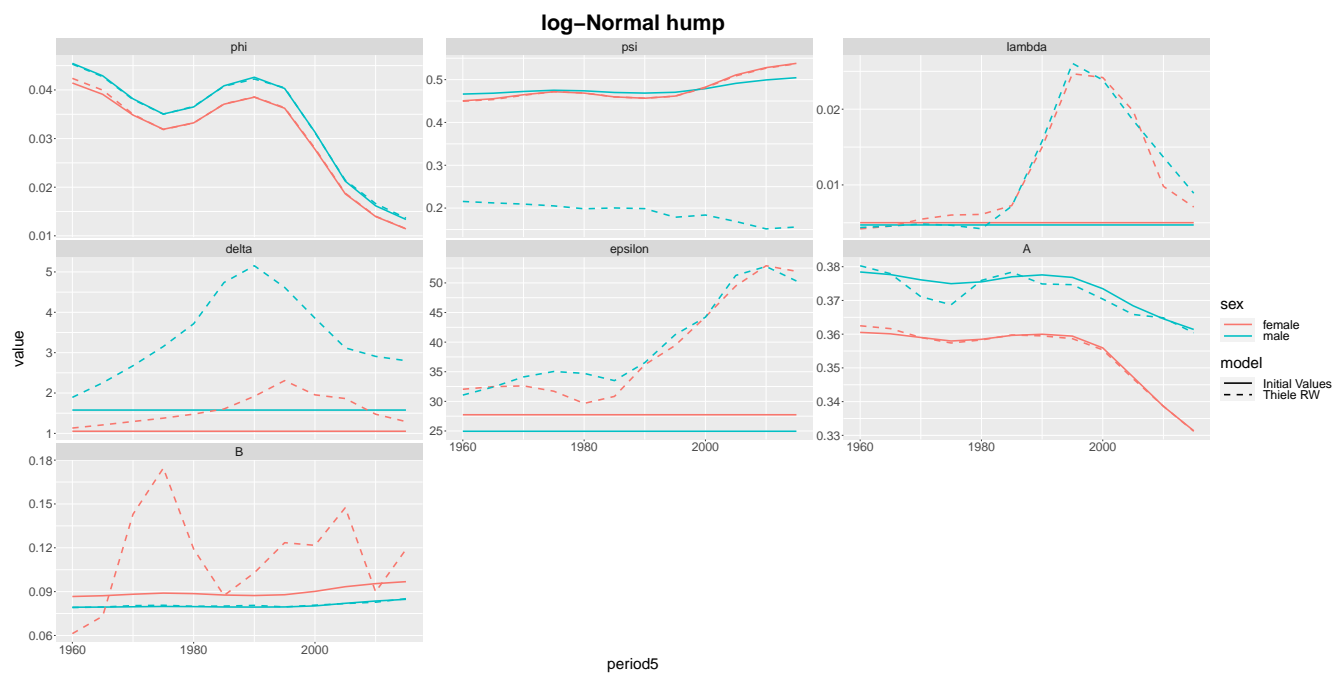


Figure 1: Estimated parameters

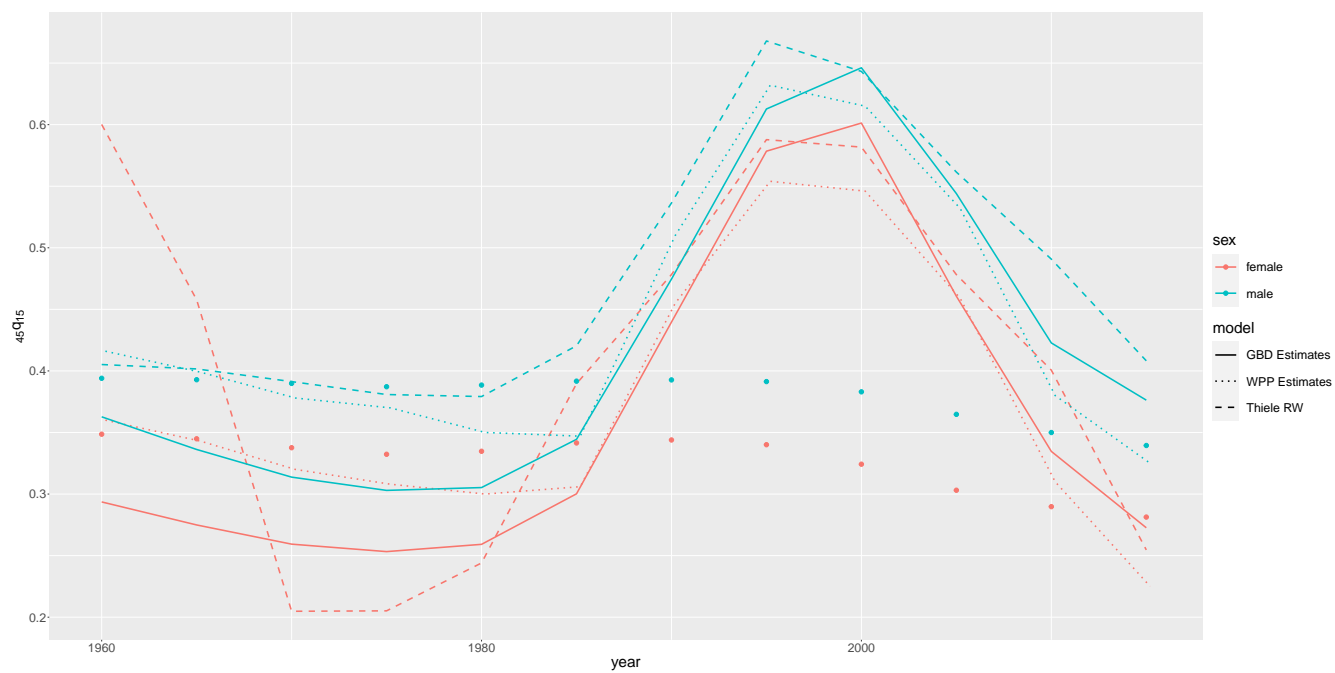


Figure 2: Estimated  $45q_{15}$



Figure 3: Estimated  $5q_0$

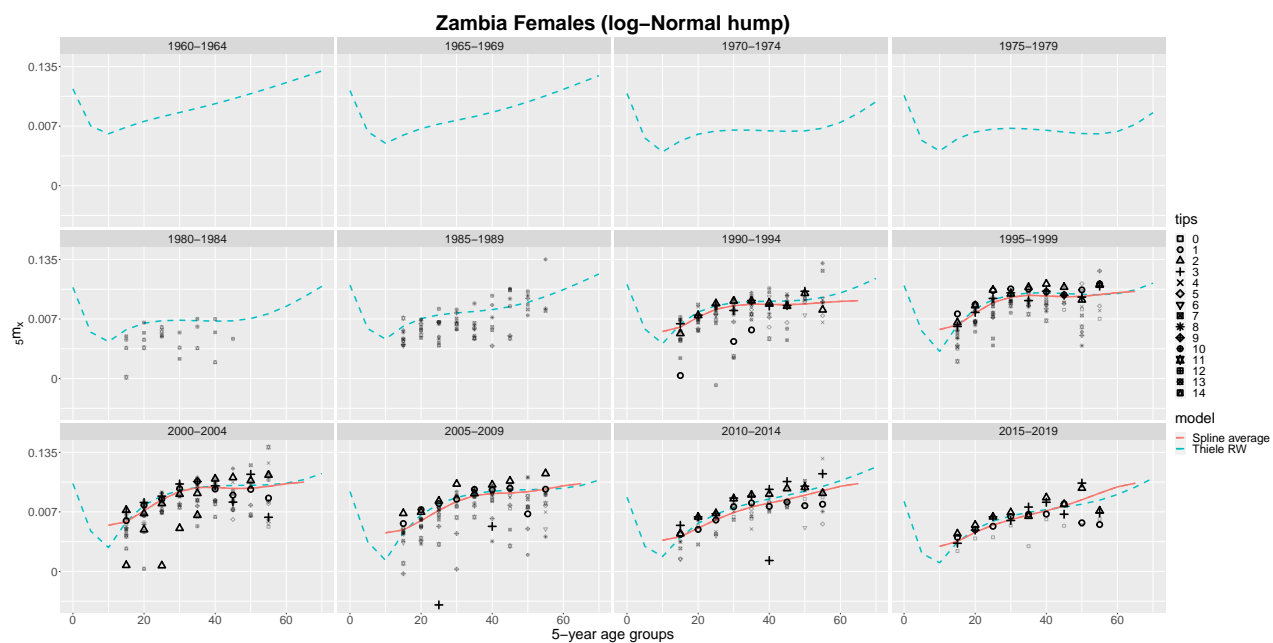


Figure 4: Mortality Schedules

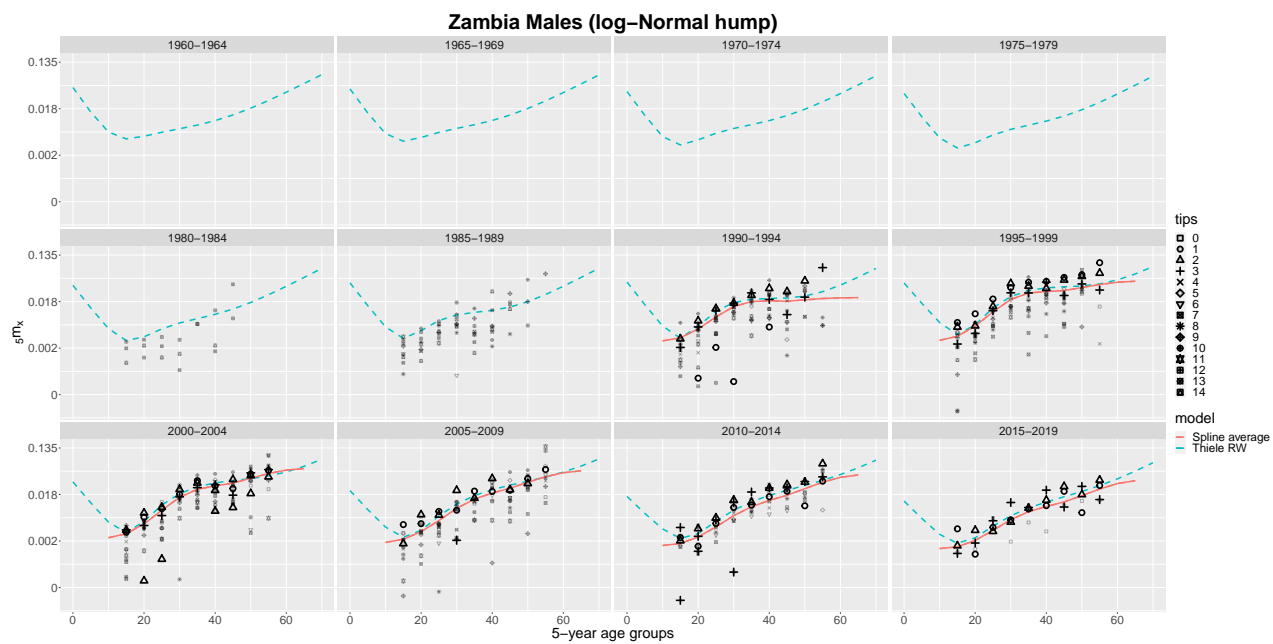


Figure 5: Mortality Schedules

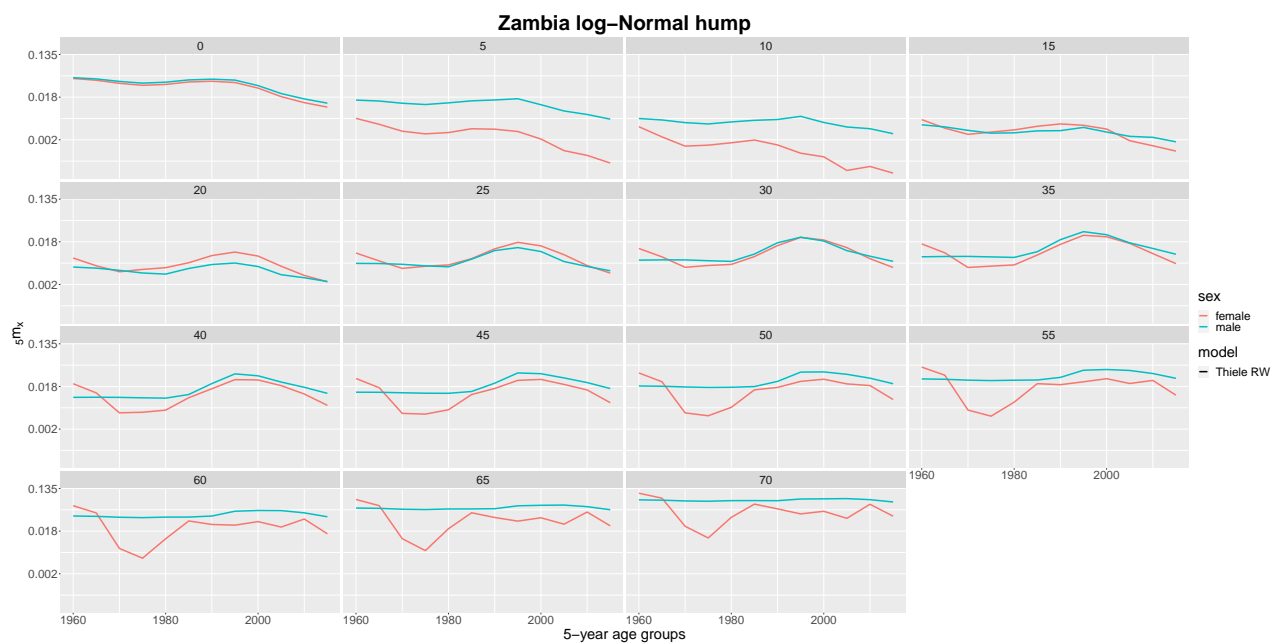


Figure 6: Mortality Schedules

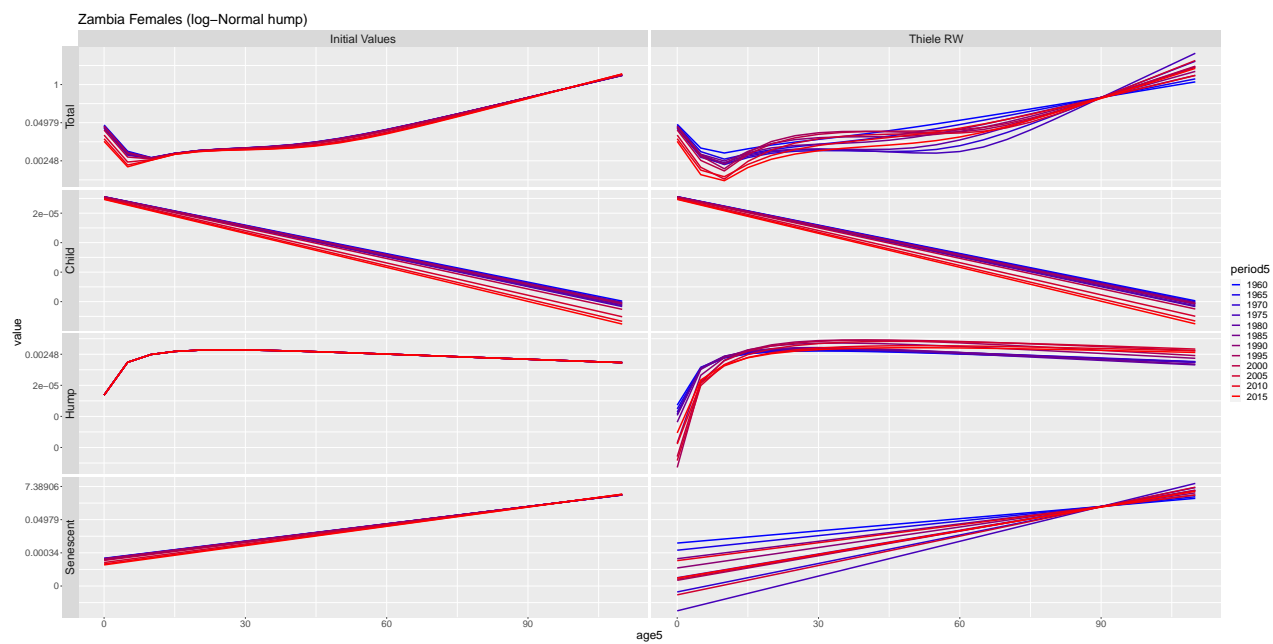


Figure 7: Thiele Decomposed

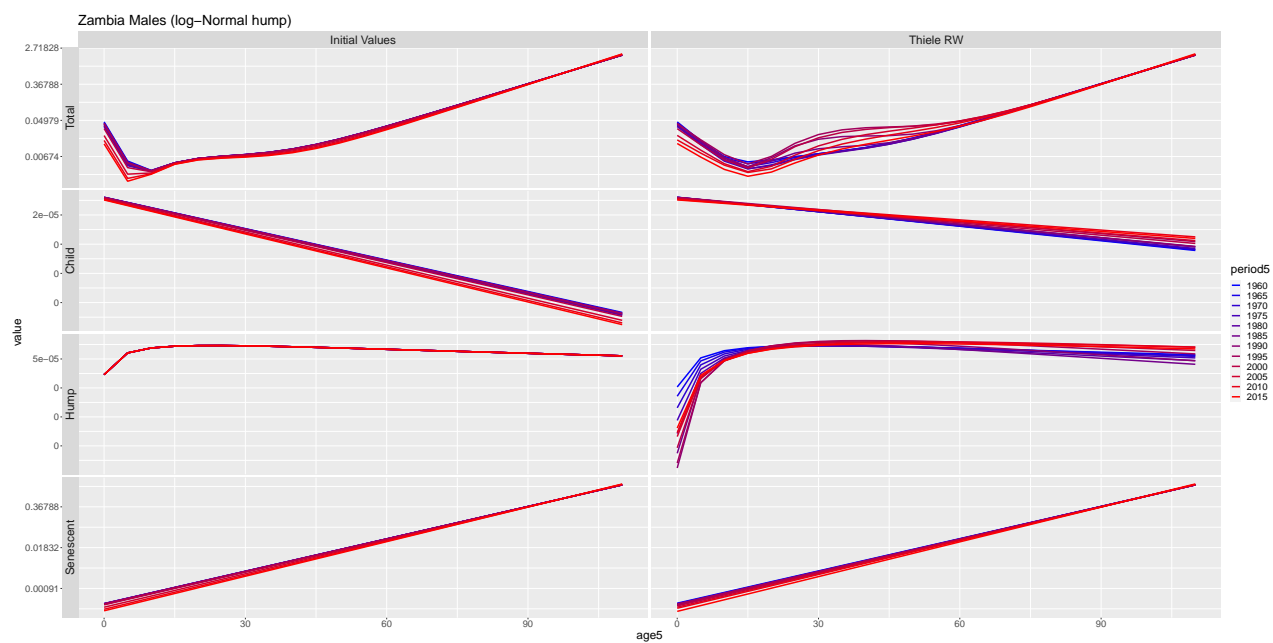


Figure 8: Thiele Decomposed

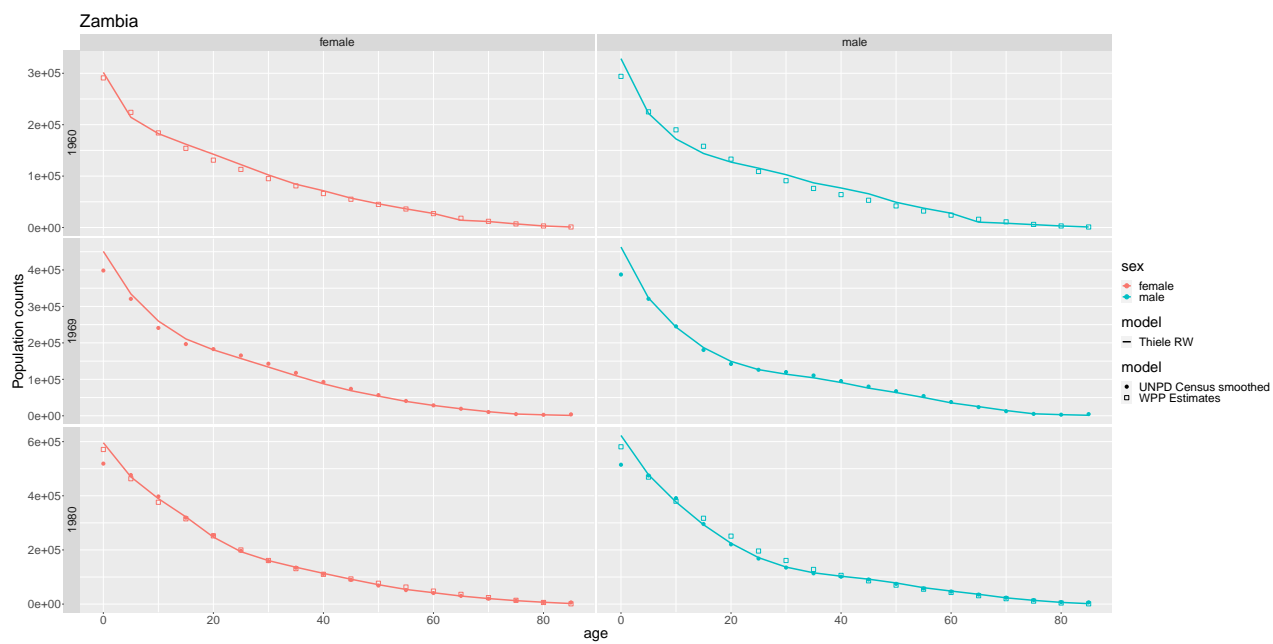


Figure 9: Population

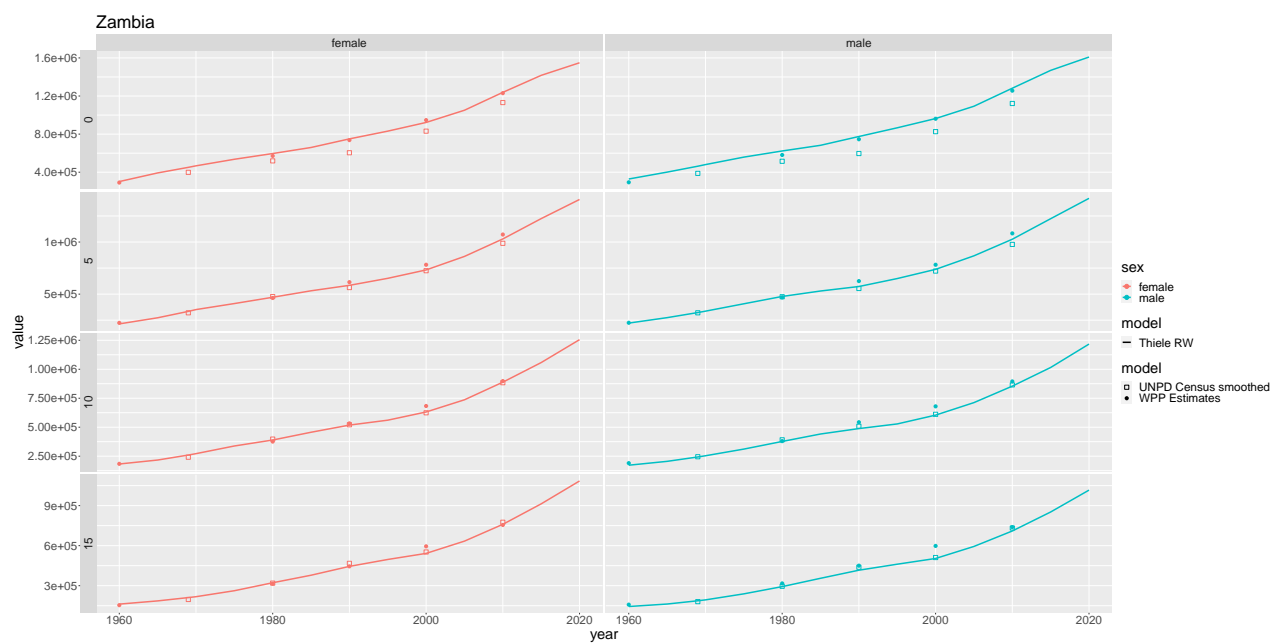


Figure 10: Population

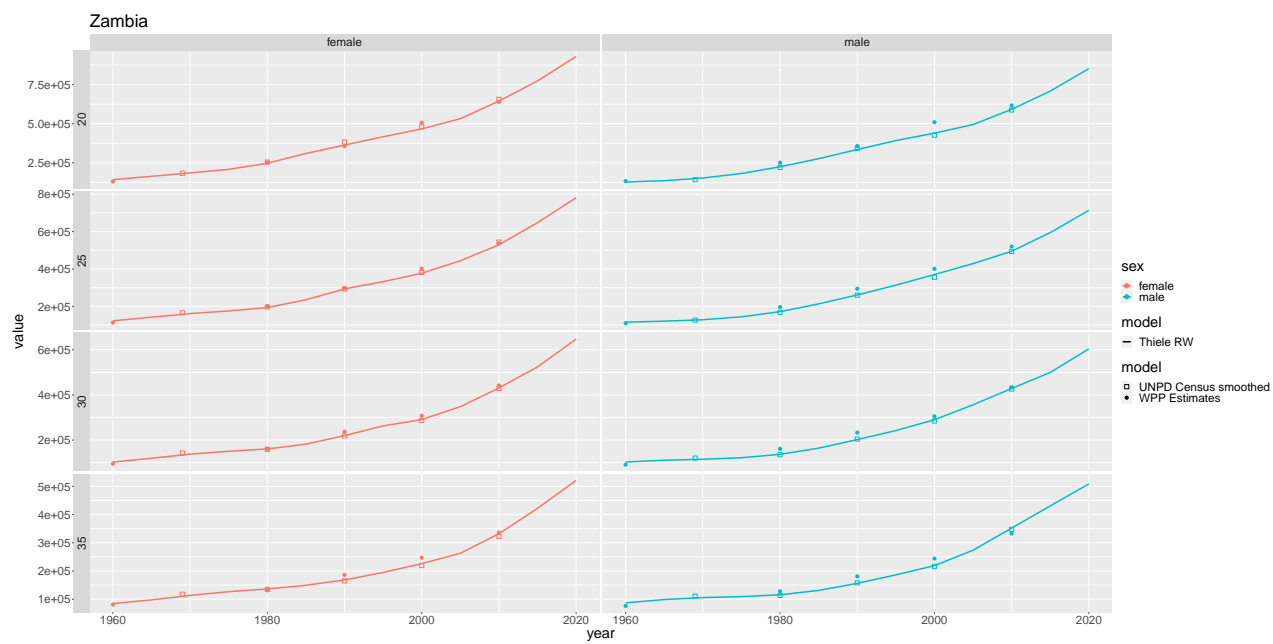


Figure 11: Population



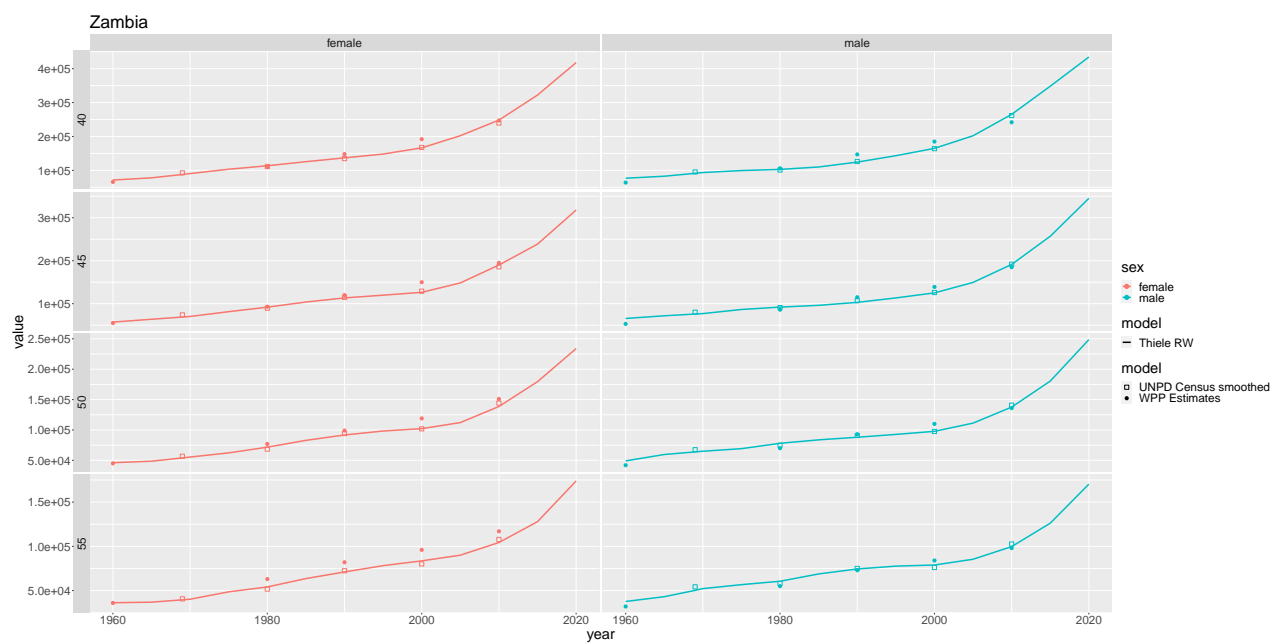


Figure 12: Population

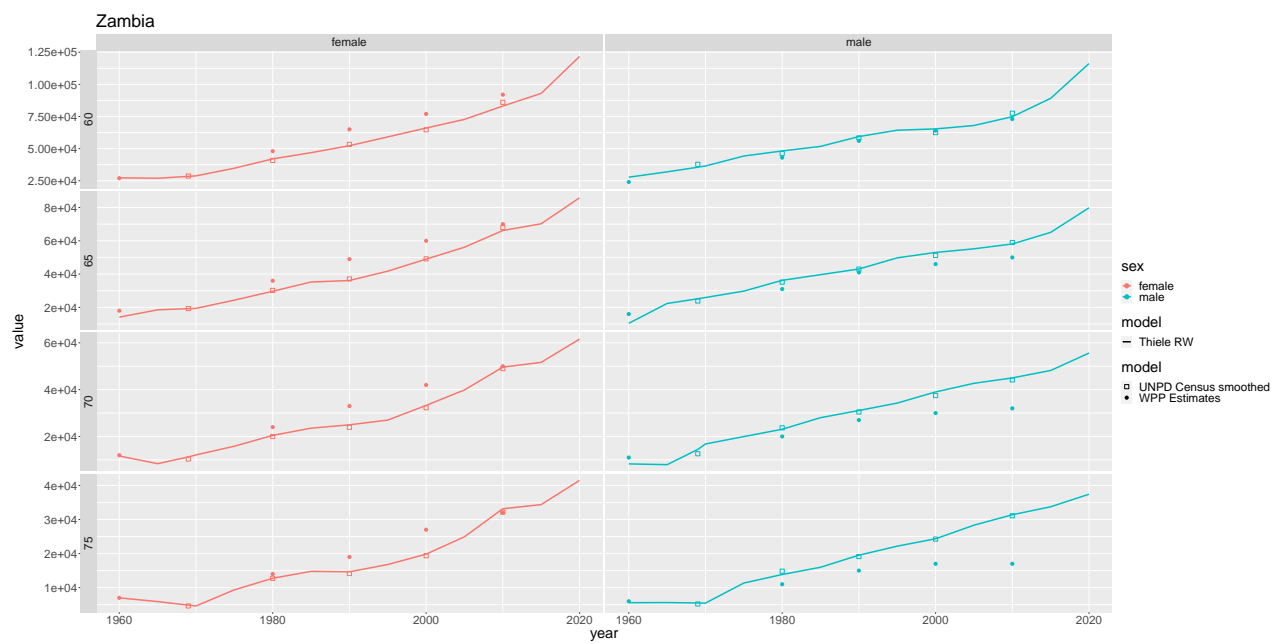


Figure 13: Population

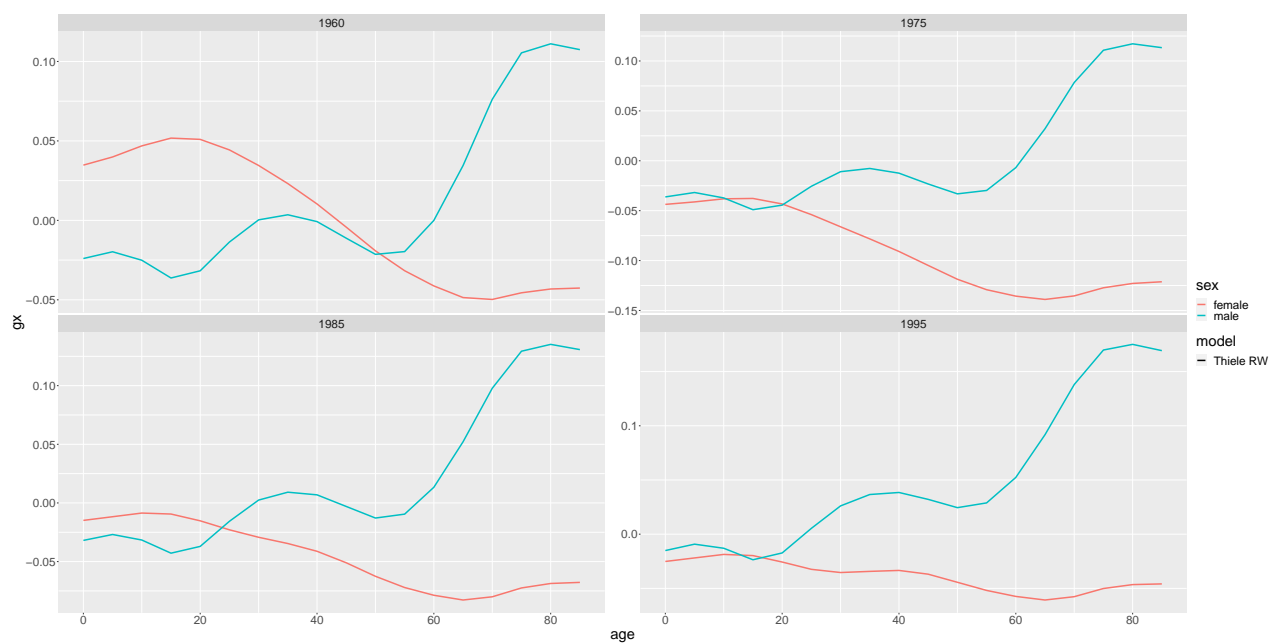


Figure 14: Migration

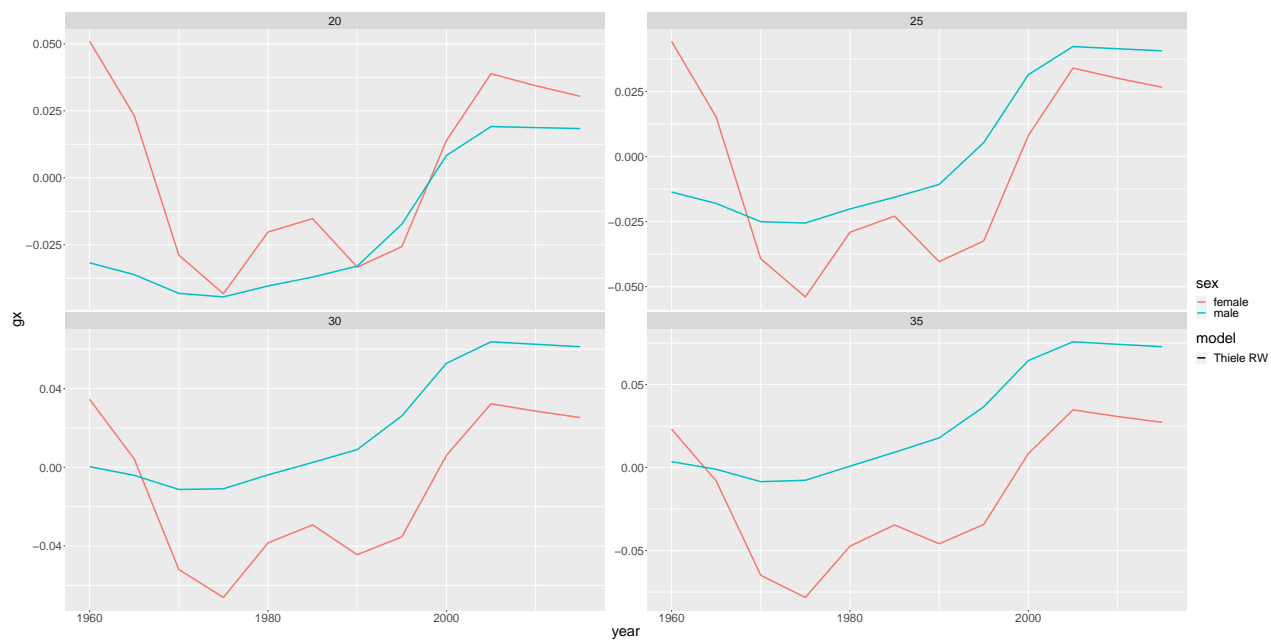


Figure 15: Migration

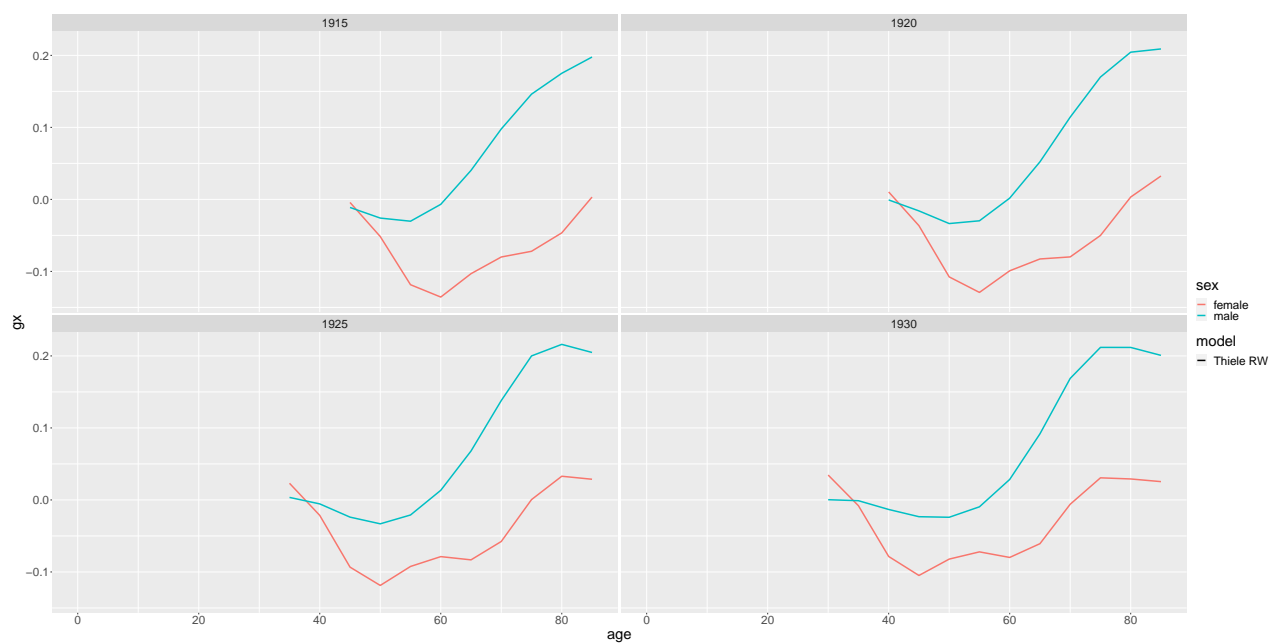


Figure 16: Migration

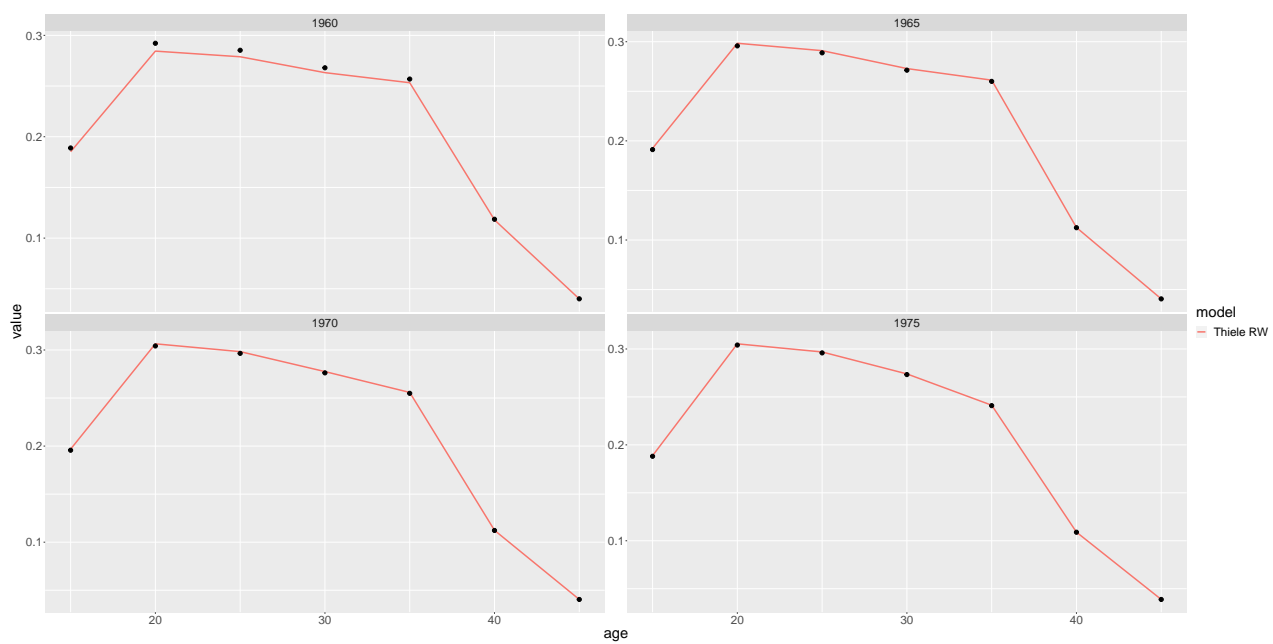


Figure 17: Fertility

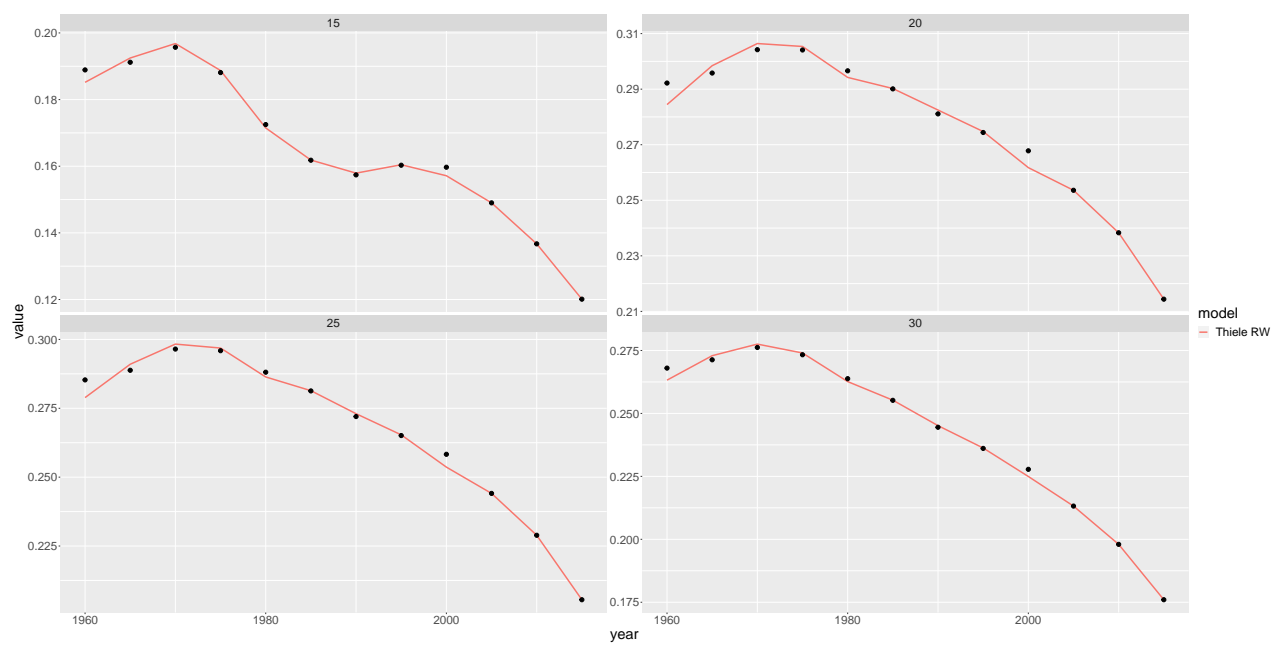


Figure 18: Fertility