

Togo

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

## # A tibble: 18 x 4
##   aggr.age `1970` `1981` `2010`
## *   <dbl>   <dbl>   <dbl>   <dbl>
## 1       0 205745. 270991. 445753.
## 2       5 162212. 223881. 436083.
## 3      10 104920. 164223. 370046.
## 4      15  75497. 130977. 309693.
## 5      20  79994. 122493. 290666.
## 6      25  83454. 111348. 270917.
## 7      30  72531.  90044. 229765.
## 8      35  57568.  68593. 187312.
## 9      40  43942.  53165. 151703.
## 10     45  33669.  41694. 120178.
## 11     50  25240.  30908.  92157.
## 12     55  18557.  22256.  69045.
## 13     60  15285.  18221.  54414.
## 14     65  12514.  14719.  43884.
## 15     70   9034.  10947.  33878.
## 16     75   5962.   6866.  20370.
## 17     80   4091.  18818.  45734.
## 18     85   8760.    NA    NA
```

```
## [1] "Census Males"

## # A tibble: 18 x 4
##   aggr.age `1970` `1981` `2010`
## *   <dbl>   <dbl>   <dbl>   <dbl>
## 1       0 203979. 273552. 457477.
## 2       5 172896. 240827. 453946.
## 3      10 117907. 184640. 395001.
## 4      15  74089. 132551. 318112.
## 5      20  56943.  96868. 258958.
## 6      25  51808.  76324. 220972.
## 7      30  48665.  62959. 195558.
## 8      35  44229.  51668. 168457.
## 9      40  37863.  44478. 139836.
## 10     45  31765.  38728. 112004.
## 11     50  25110.  30174.  83440.
## 12     55  18801.  22170.  59442.
## 13     60  14915.  18389.  42713.
## 14     65  11797.  15110.  30553.
## 15     70   8474.  11486.  22097.
## 16     75   5712.   7179.  13278.
## 17     80   4154.  20772.  28018.
## 18     85  10688.    NA    NA
```

Thiele log-Normal Hump RW

```
##   user  system elapsed
## 30.48   0.53   31.49
```

```
## [1] "relative convergence (4)"  
Thiele log-Normal Hump RW (Pop 5-9 to 70-74, DHS 15-19 to 45-49)  
##      user  system elapsed  
##  27.83    0.50   28.78  
## [1] "relative convergence (4)"
```

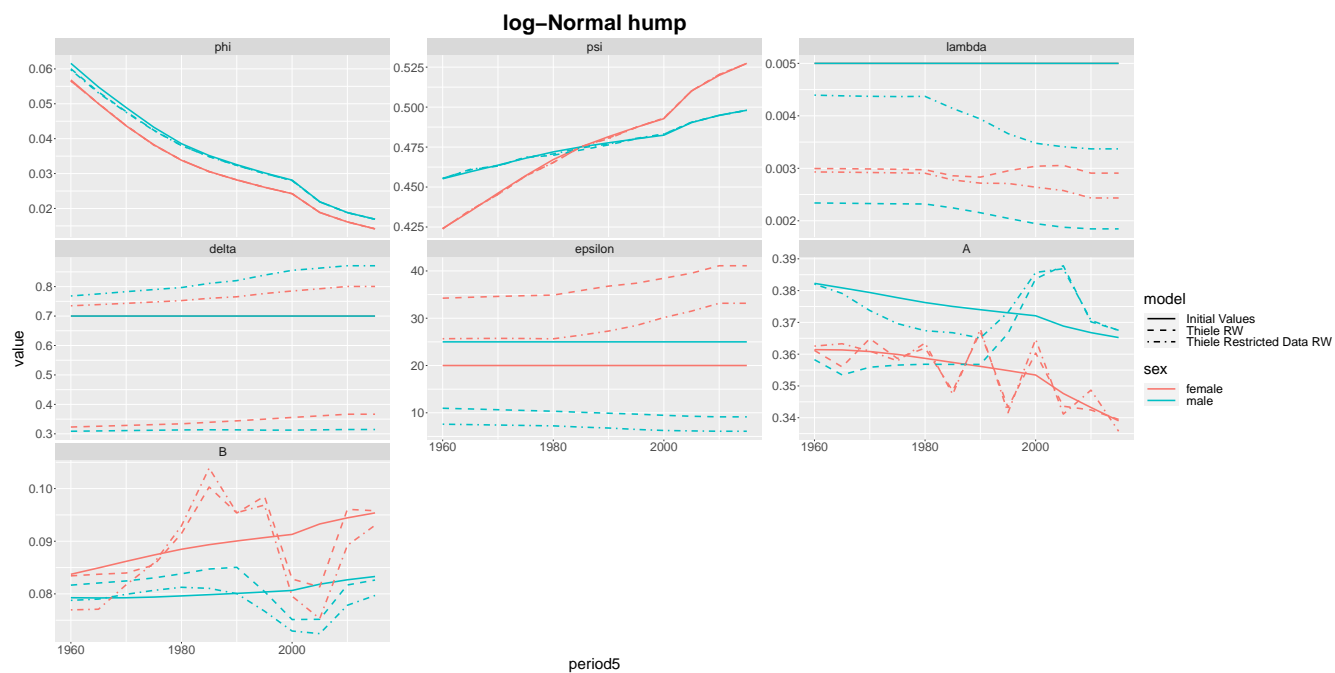


Figure 1: Estimated parameters



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

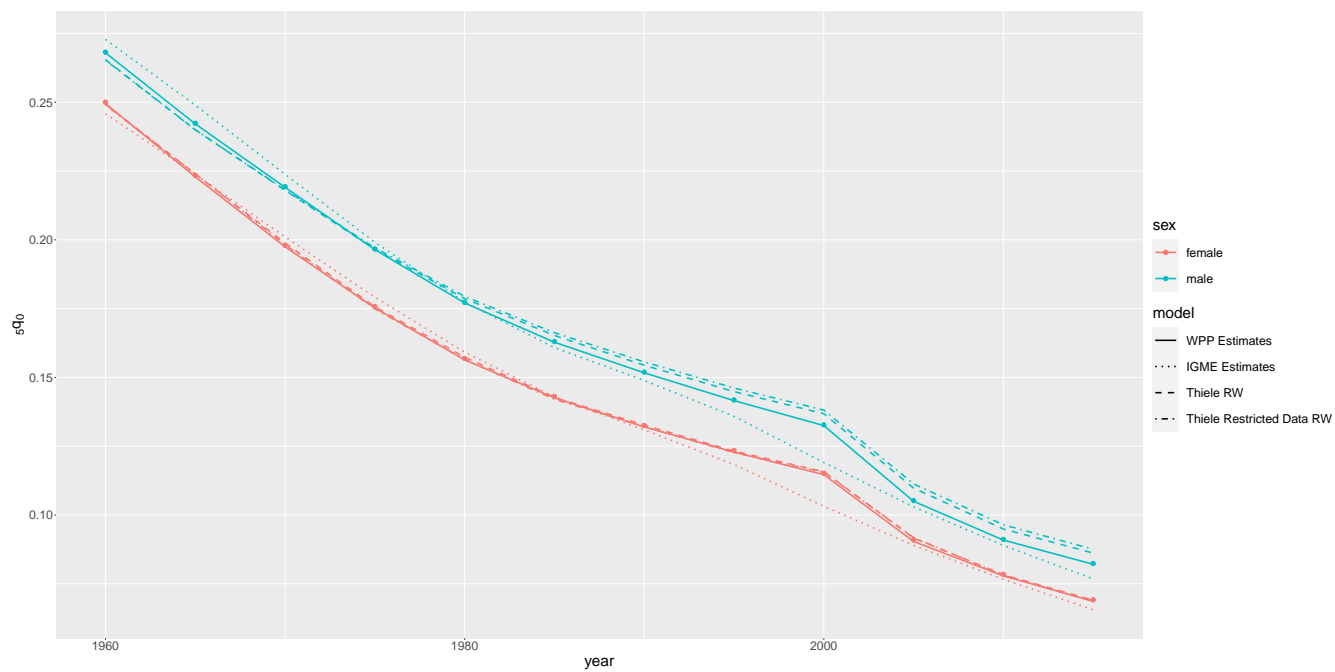


Figure 3: Estimated $_{5}q_0$

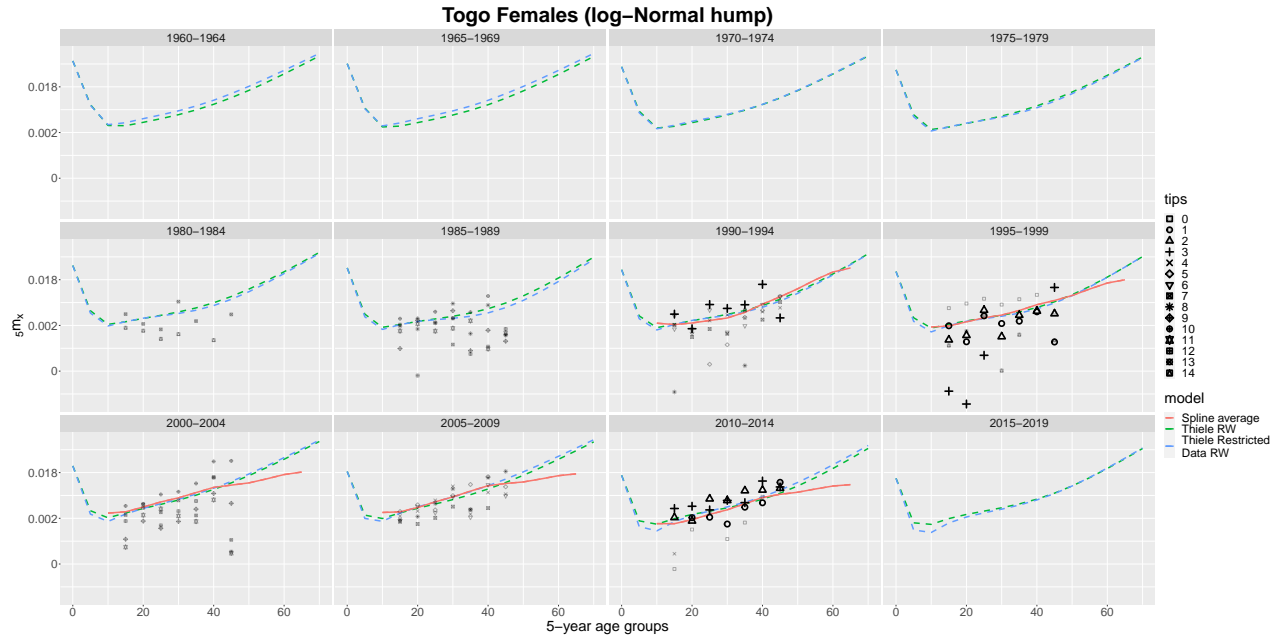


Figure 4: Mortality Schedules

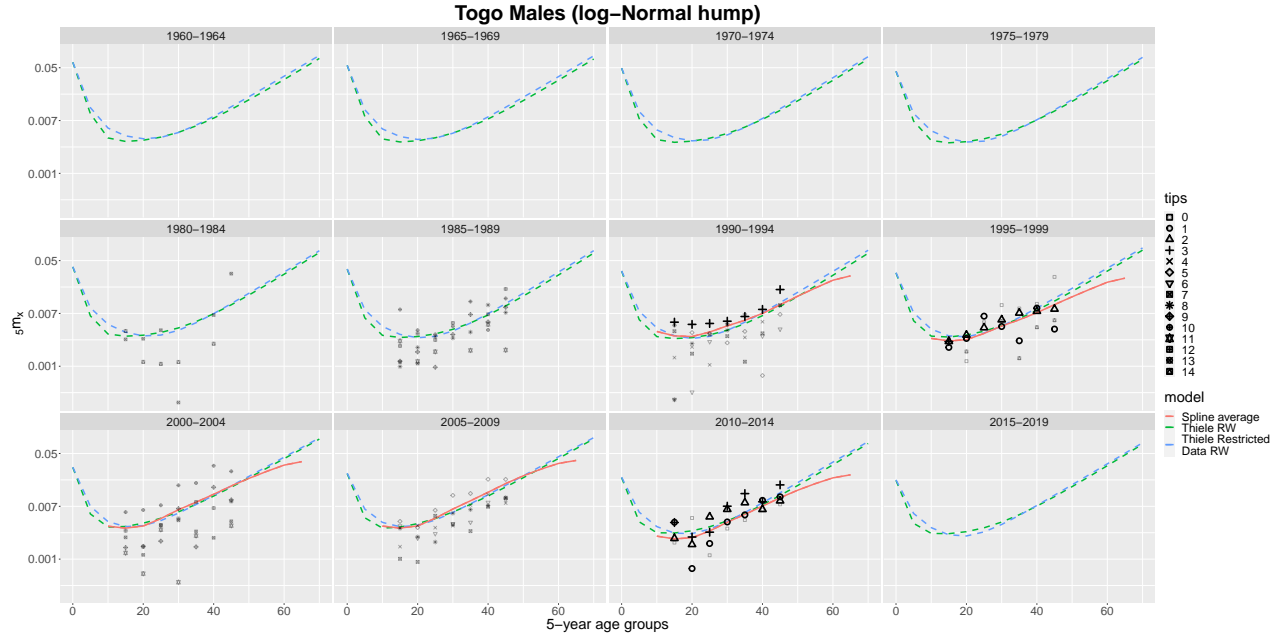


Figure 5: Mortality Schedules

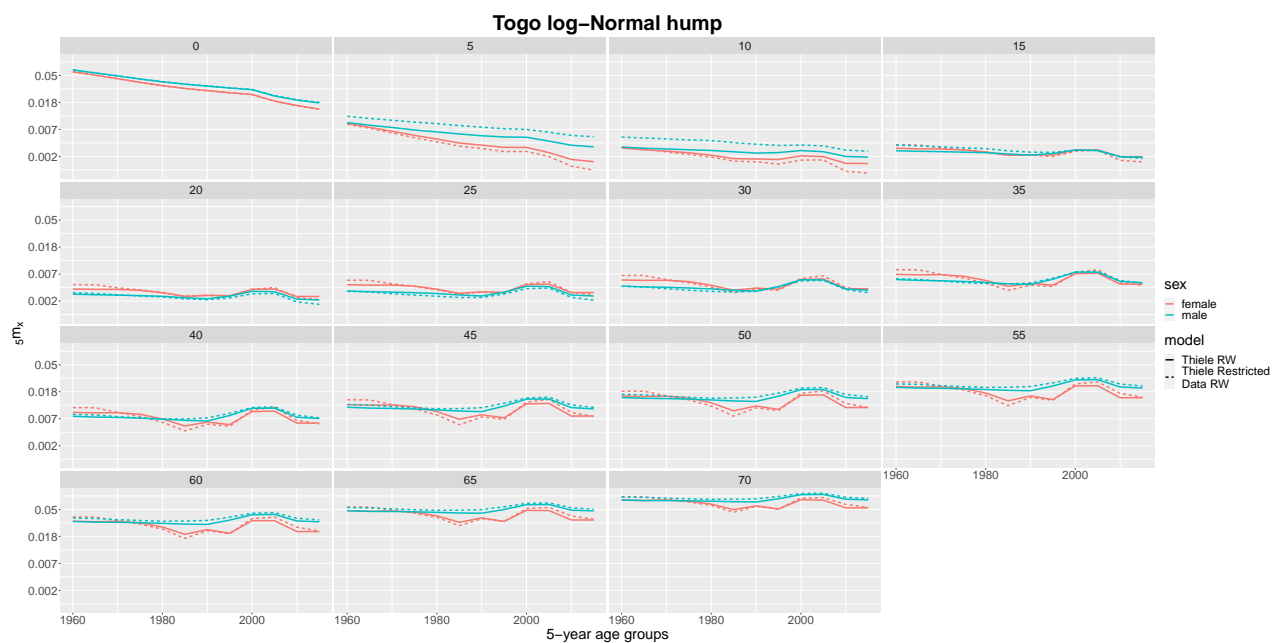


Figure 6: Mortality Schedules

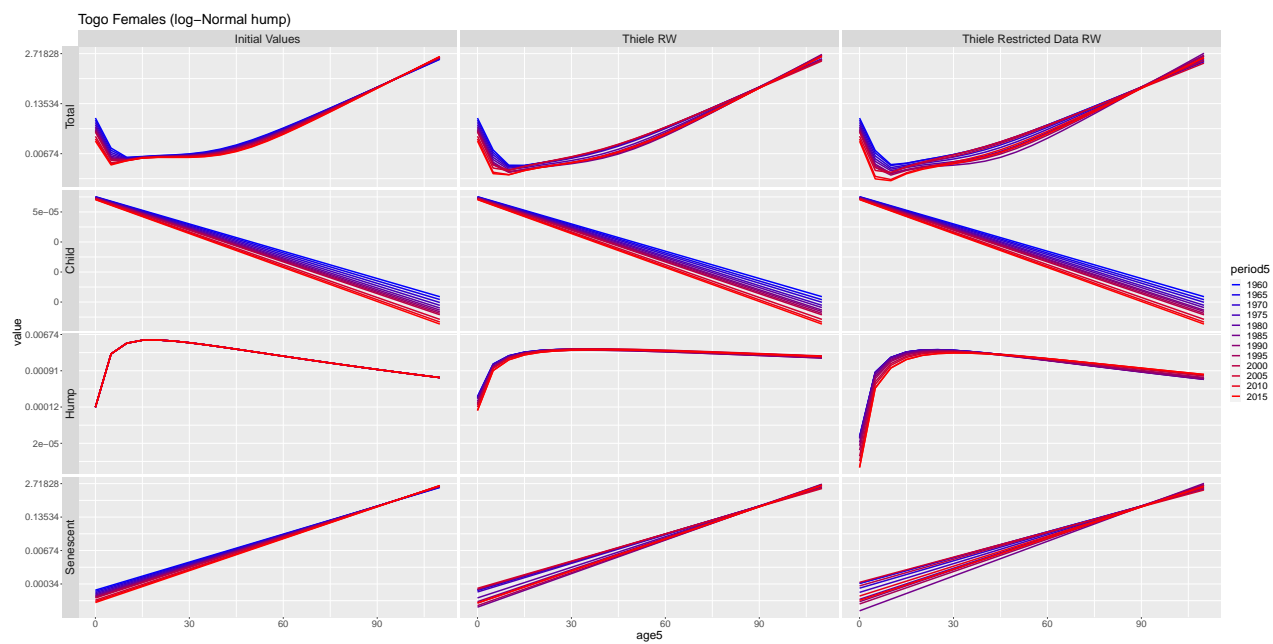


Figure 7: Thiele Decomposed

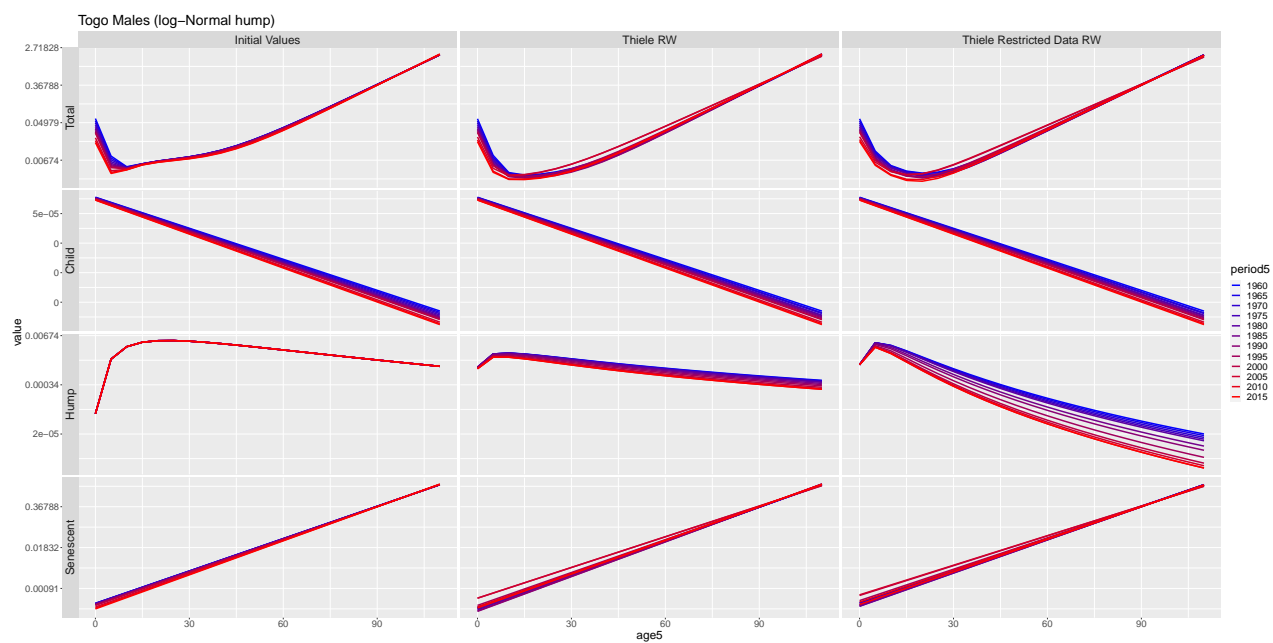


Figure 8: Thiele Decomposed

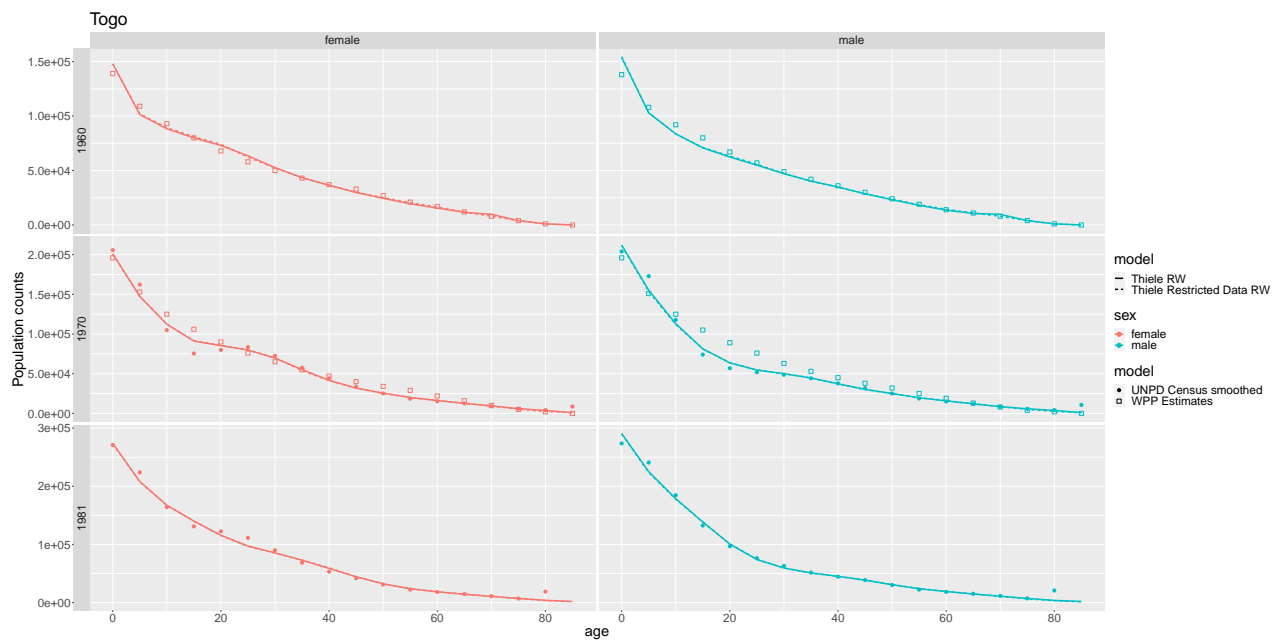


Figure 9: Population

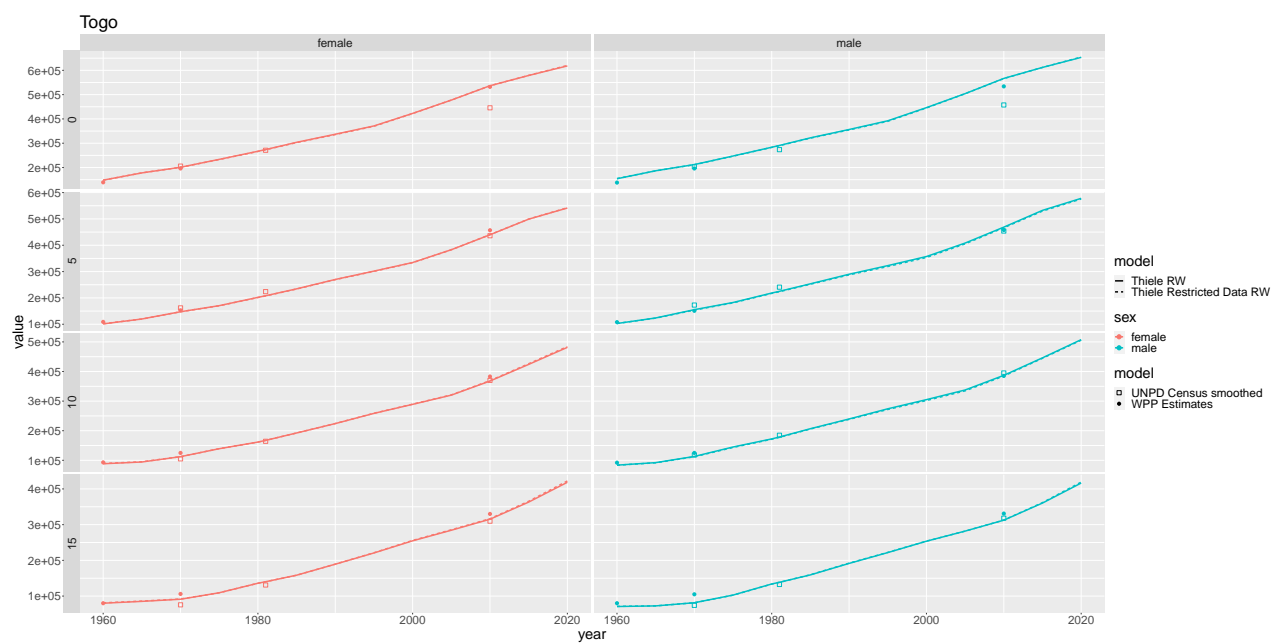


Figure 10: Population

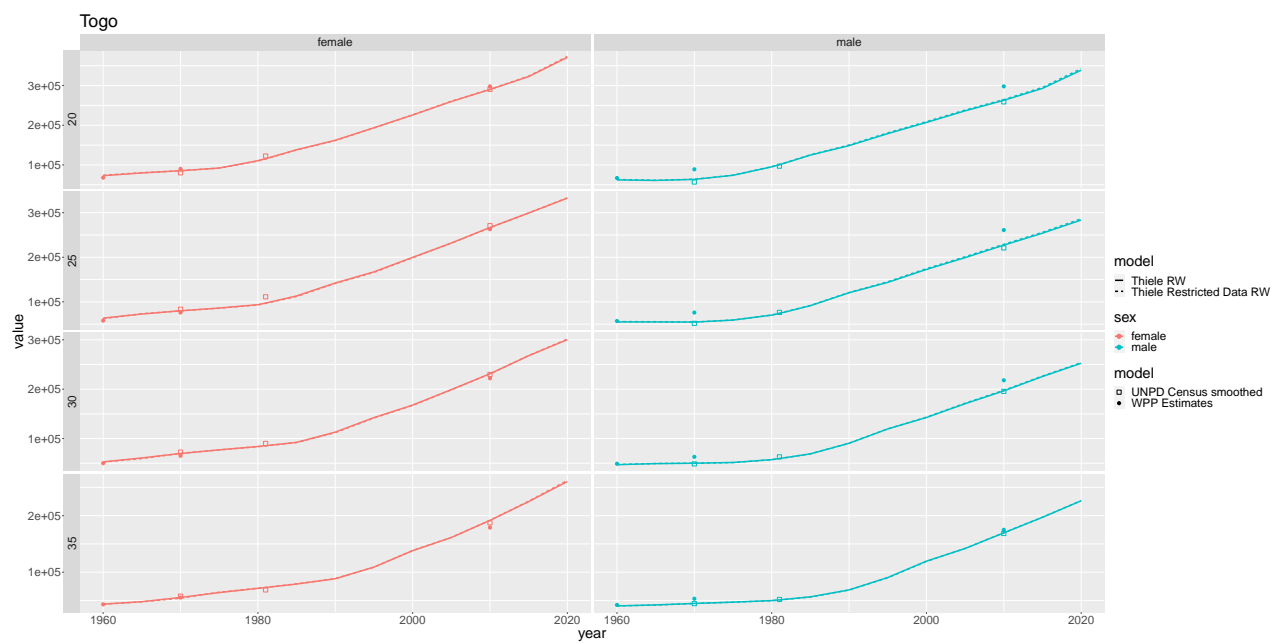


Figure 11: Population

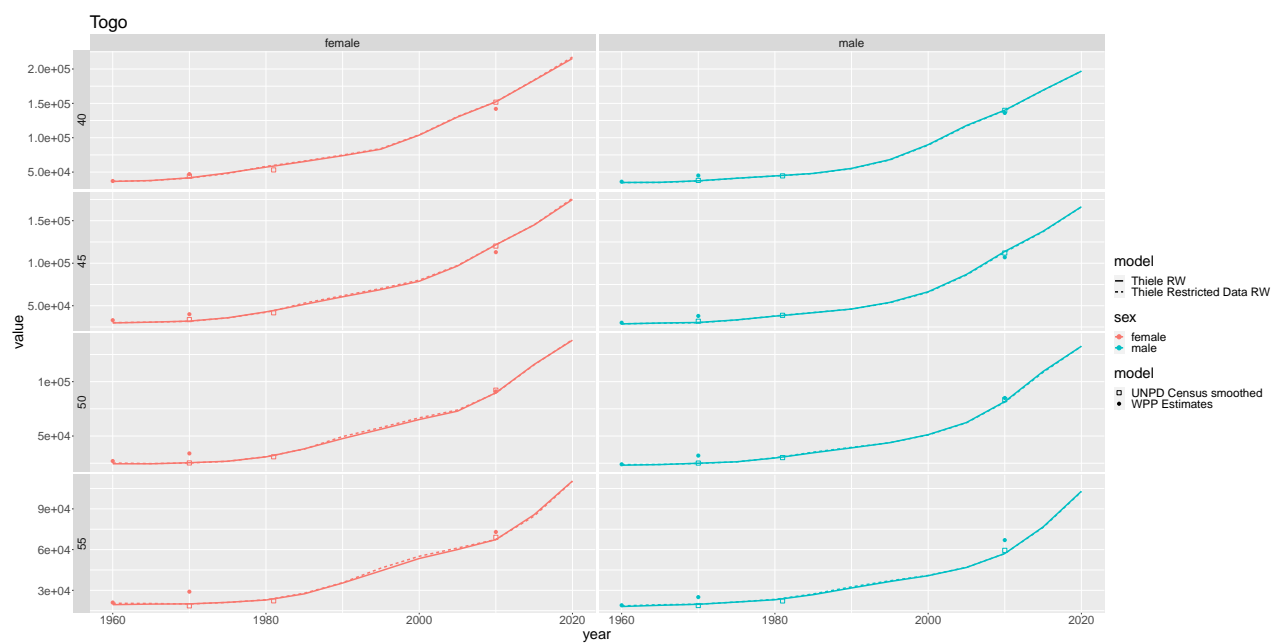


Figure 12: Population

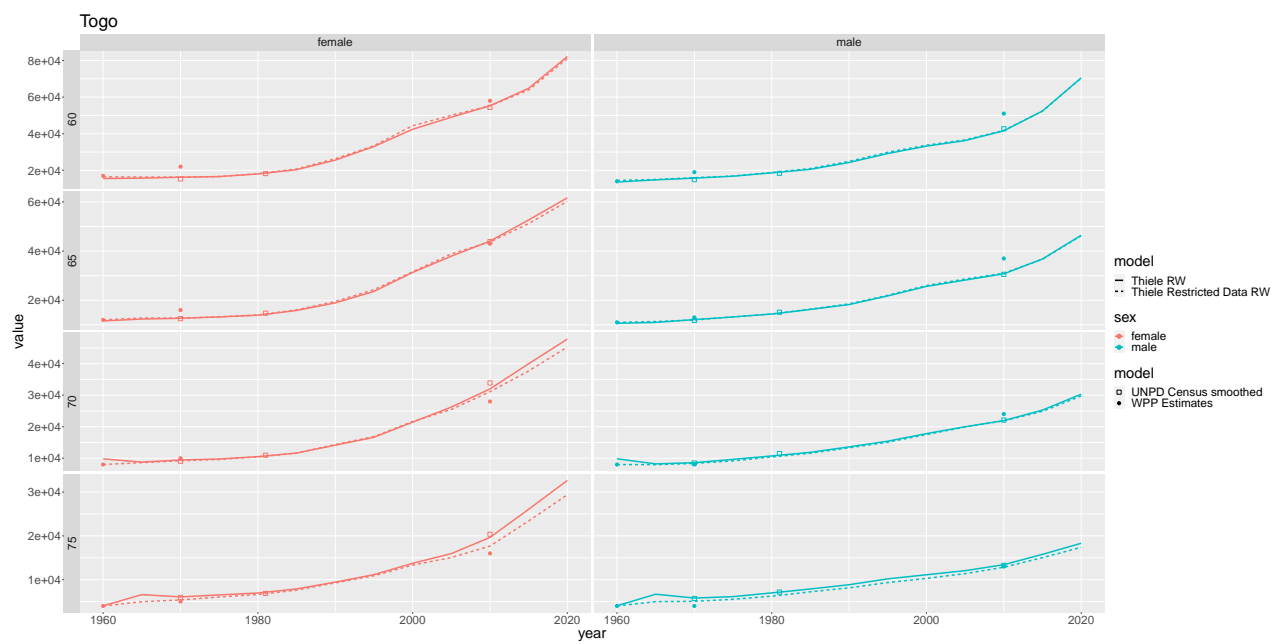


Figure 13: Population

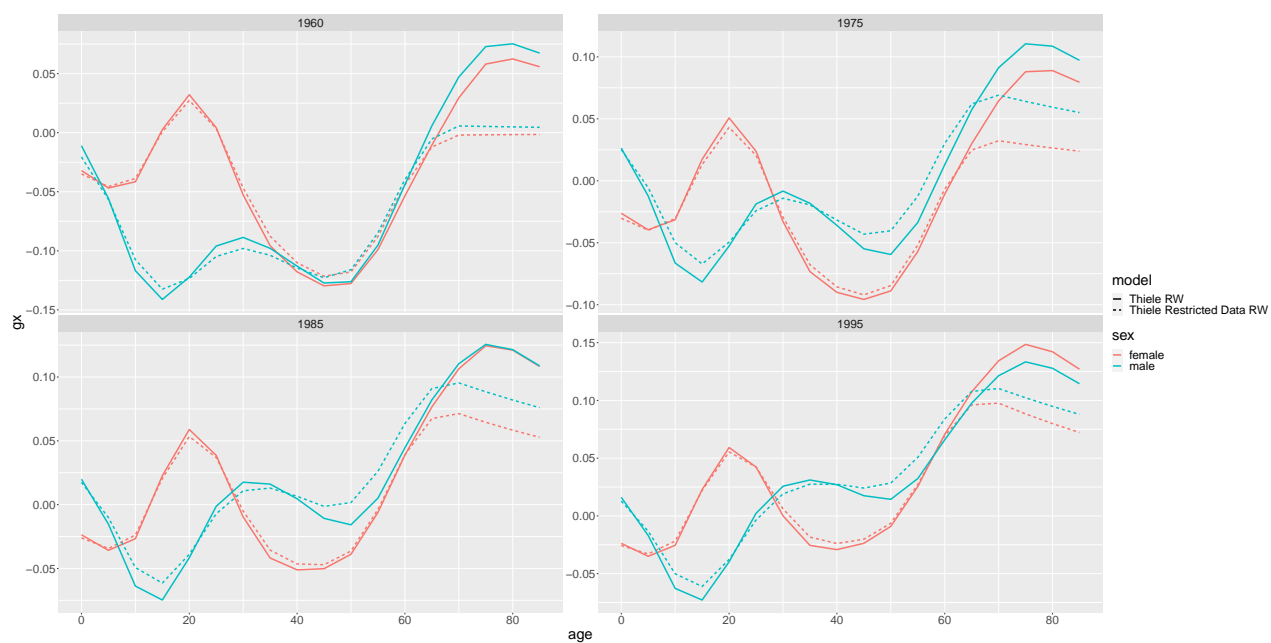


Figure 14: Migration

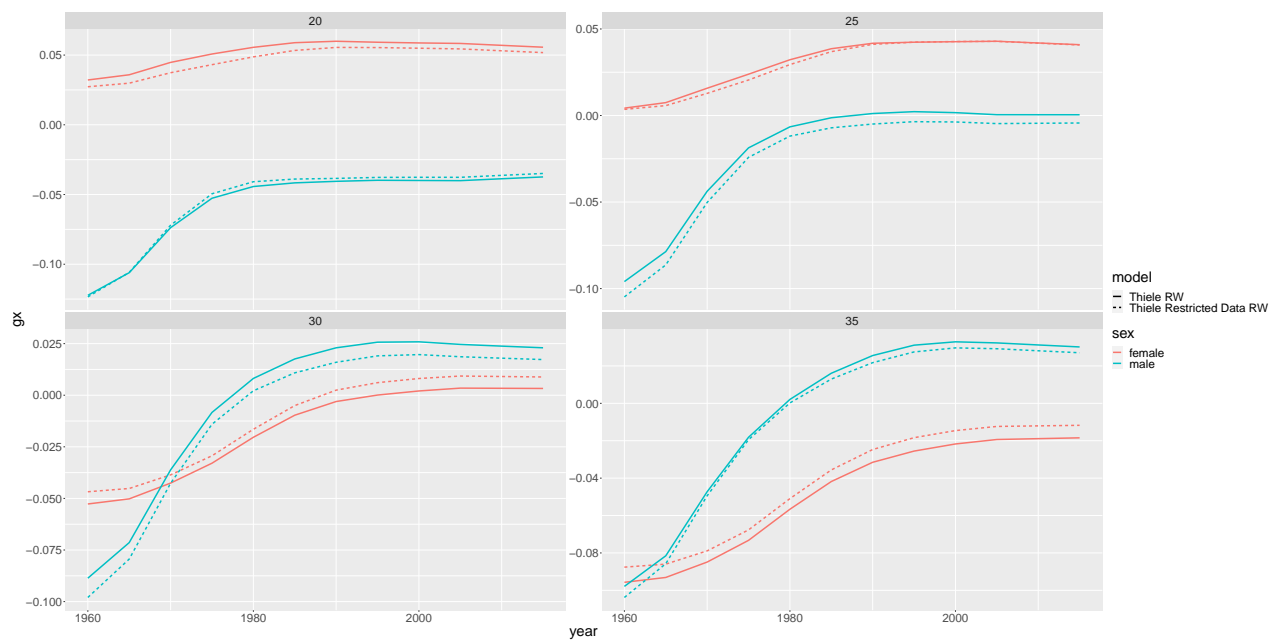


Figure 15: Migration

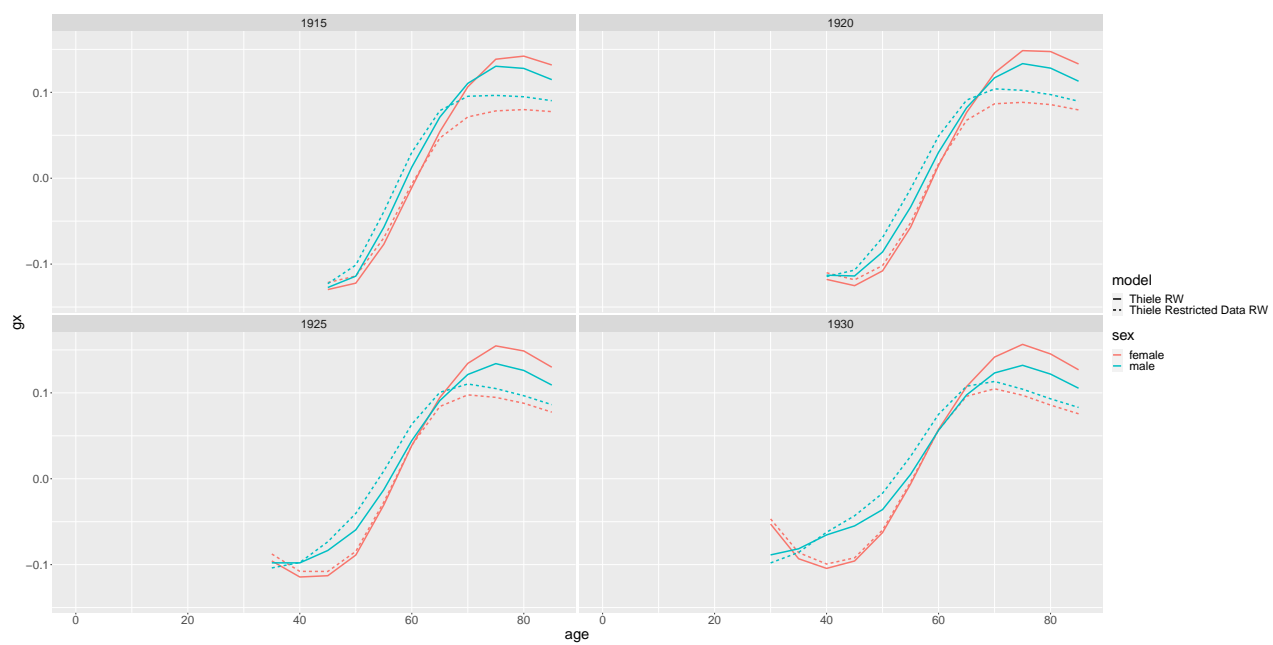


Figure 16: Migration

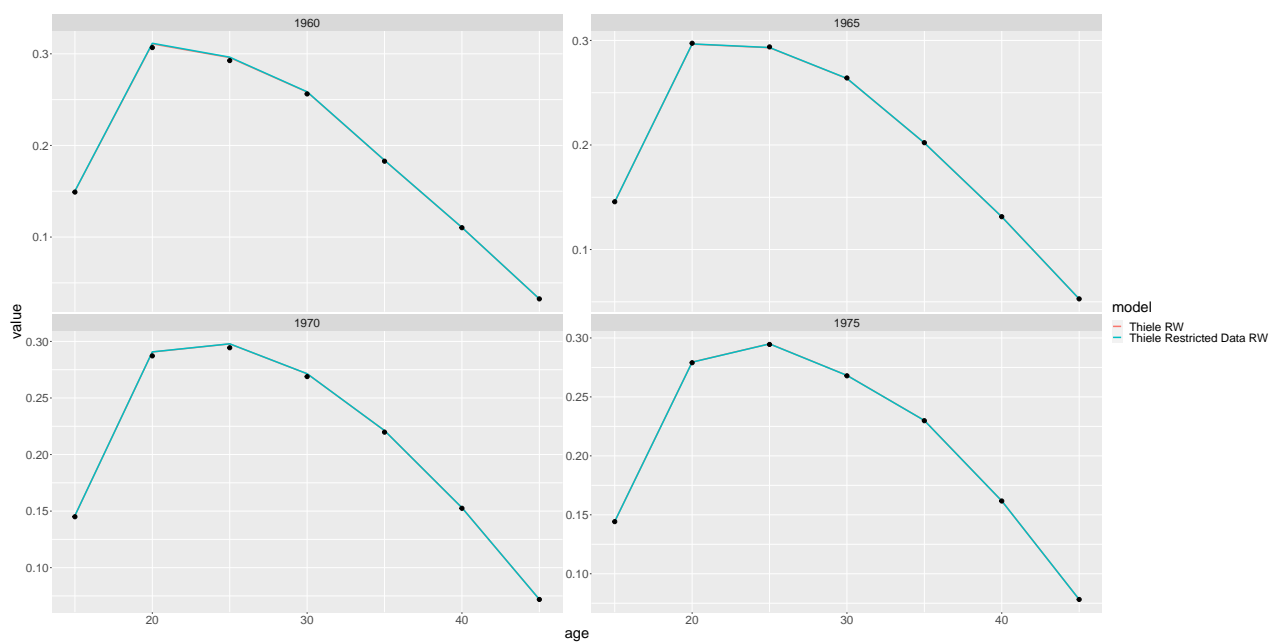


Figure 17: Fertility

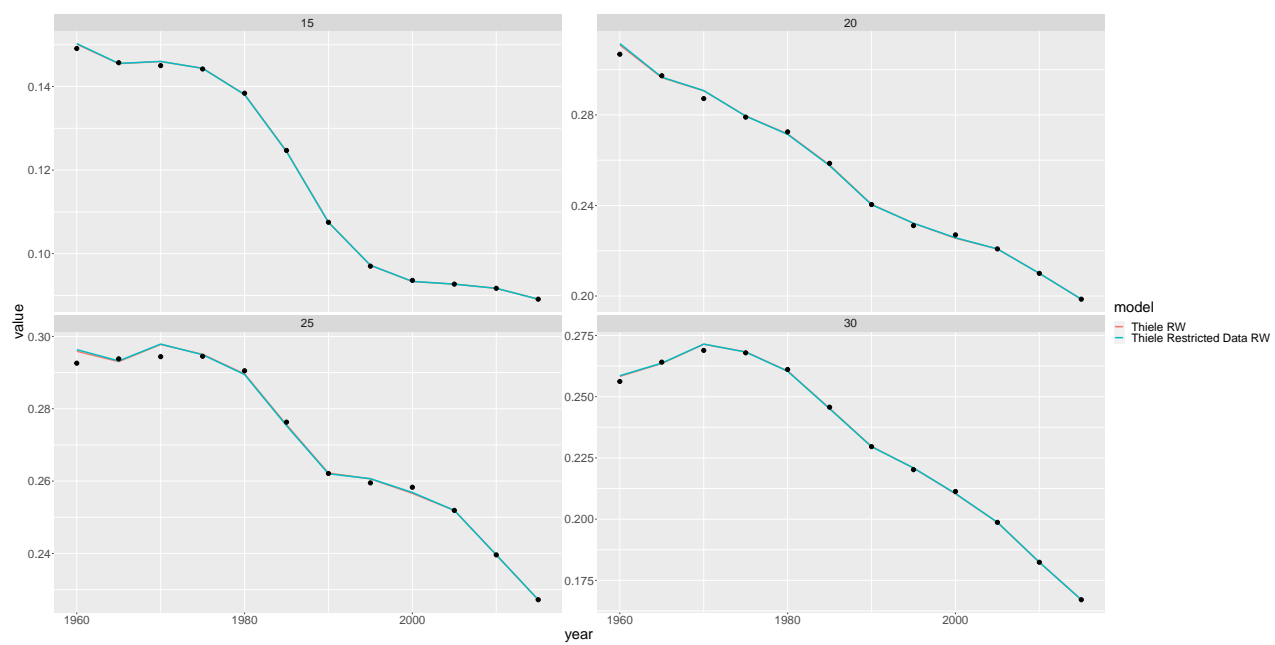


Figure 18: Fertility