

Congo

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

```
## # A tibble: 18 x 4
```

```
##   aggr.age `1974` `1984` `2007`  
## *   <dbl>   <dbl>   <dbl>   <dbl>  
## 1      0 122503. 160880. 279158  
## 2      5 100522. 142980. 235631  
## 3     10  79490. 125040. 209662.  
## 4     15  63470. 107660. 197640.  
## 5     20  52055.  89407. 187422.  
## 6     25  43495.  71045. 168917.  
## 7     30  38750.  55496. 142430.  
## 8     35  37288.  44130. 114435.  
## 9     40  35104.  37502.  88631.  
## 10    45  31605.  34621.  68360  
## 11    50  27769.  31358.  53193  
## 12    55  22732.  26843.  40778.  
## 13    60  16571.  21959.  31928.  
## 14    65  10763.  16189.  25778.  
## 15    70   5981.  10300.  19624  
## 16    75    790.   5440.  12855  
## 17    80   689.   2437.   7073.  
## 18    85    NA     671.   4684
```

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

```
## # A tibble: 18 x 4
```

```
##   aggr.age `1974` `1984` `2007`  
## *   <dbl>   <dbl>   <dbl>   <dbl>  
## 1      0 123393. 162414. 278342  
## 2      5 101676. 143202. 235910.  
## 3     10  79713. 123091. 205899  
## 4     15  59314. 103336. 184008.  
## 5     20  44571.  84483. 168768.  
## 6     25  37019.  66284. 159526.  
## 7     30  33944.  50872. 145566.  
## 8     35  32040.  40701. 122364.  
## 9     40  29112.  35058.  95512  
## 10    45  25449.  31134.  70931.  
## 11    50  22298.  26306.  51002.  
## 12    55  19353.  21239.  36610  
## 13    60  14853.  16981.  27375.  
## 14    65   9391.  12954.  20781.  
## 15    70   4895.   8572.  14673.  
## 16    75    720.   4419.   8750  
## 17    80   517.   1746.   4313.  
## 18    85    NA     487.   2680
```

Thiele log-Normal Hump RW

```
## Warning in fit_tmb(input.thiele.loghump.oag.vec.RW, inner_verbose = FALSE, : convergence error: false c
```

```
##      user  system elapsed
##  29.49    0.37   29.92
## [1] "false convergence (8)"
```

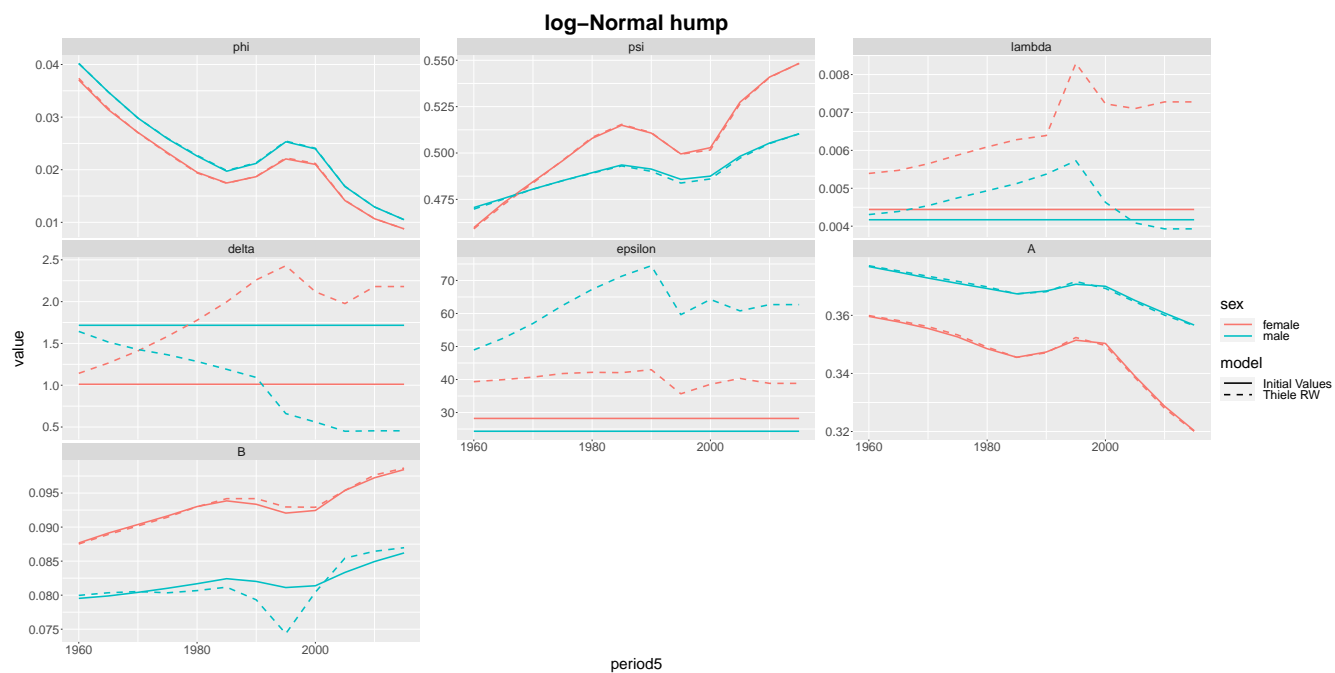


Figure 1: Estimated parameters

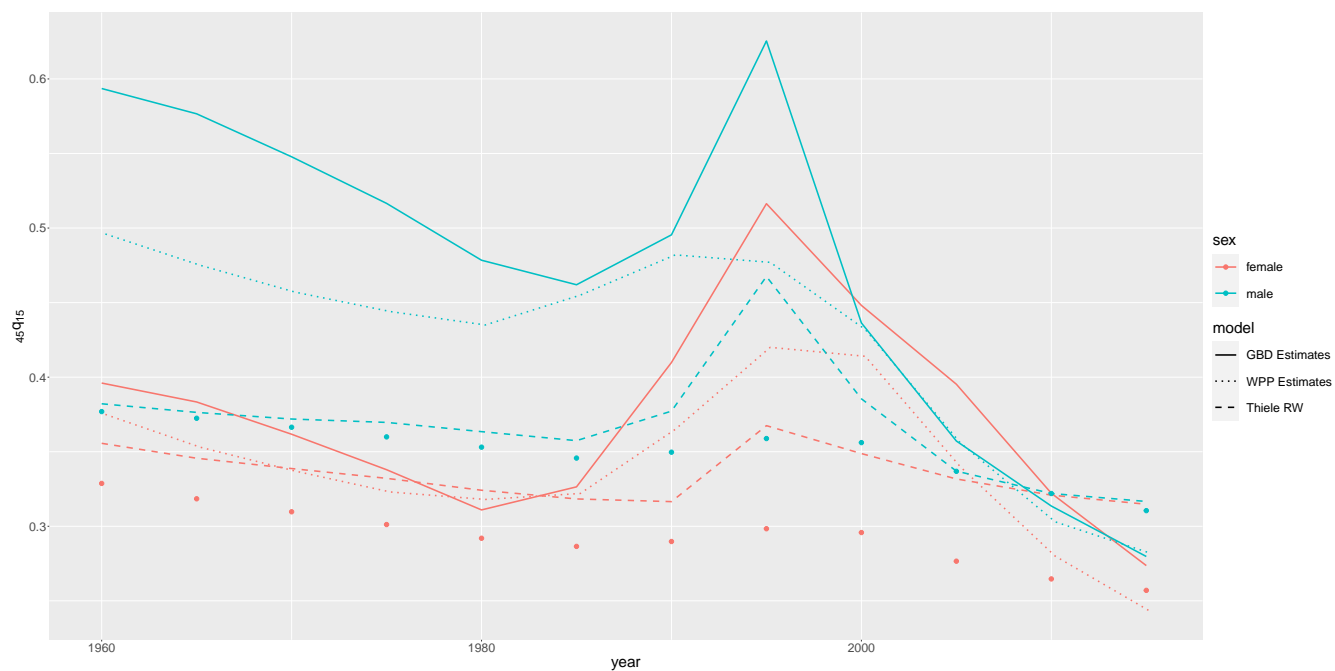


Figure 2: Estimated $45q_{15}$



Figure 3: Estimated $5q_0$

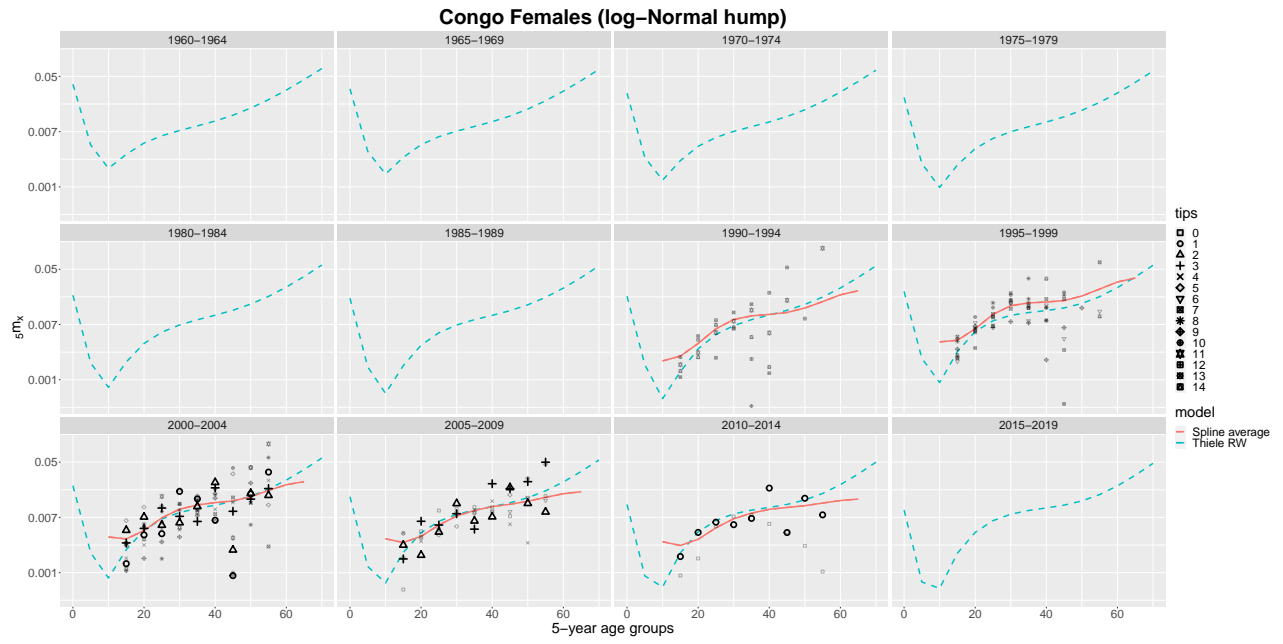


Figure 4: Mortality Schedules

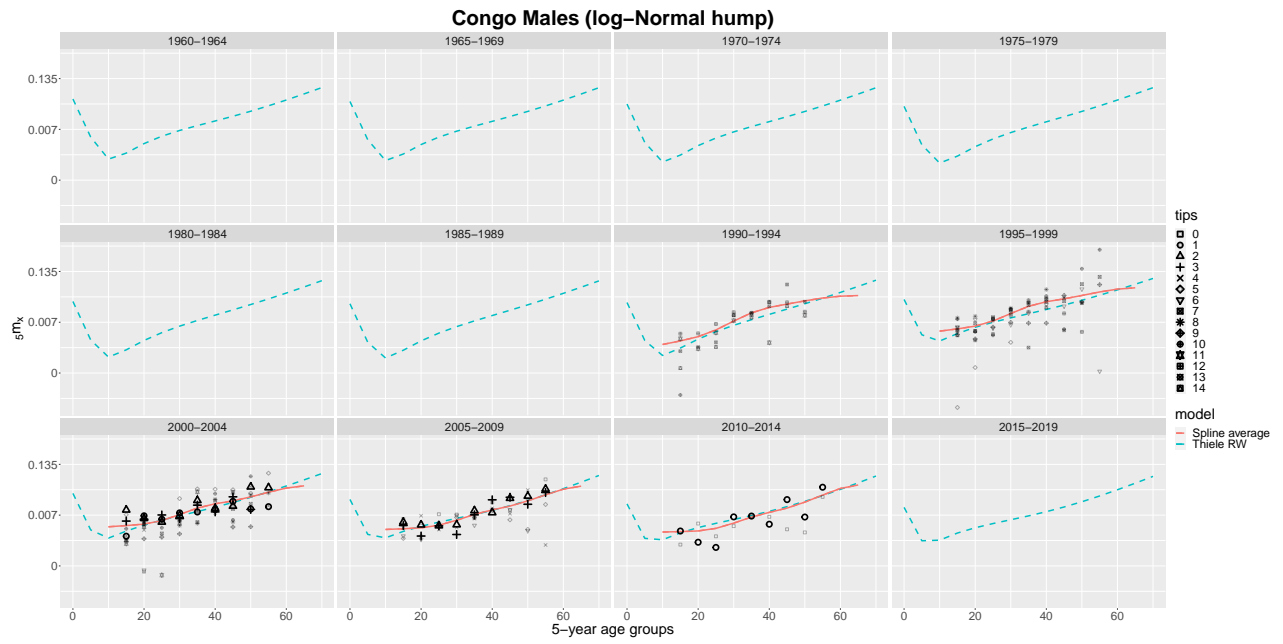


Figure 5: Mortality Schedules

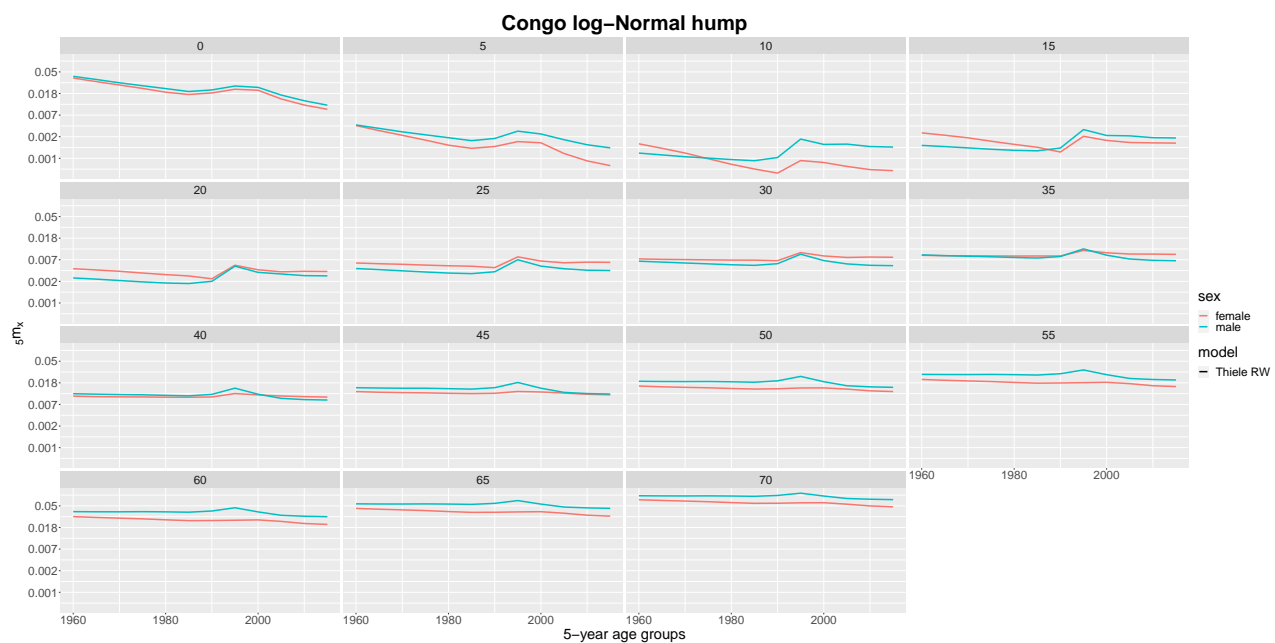


Figure 6: Mortality Schedules

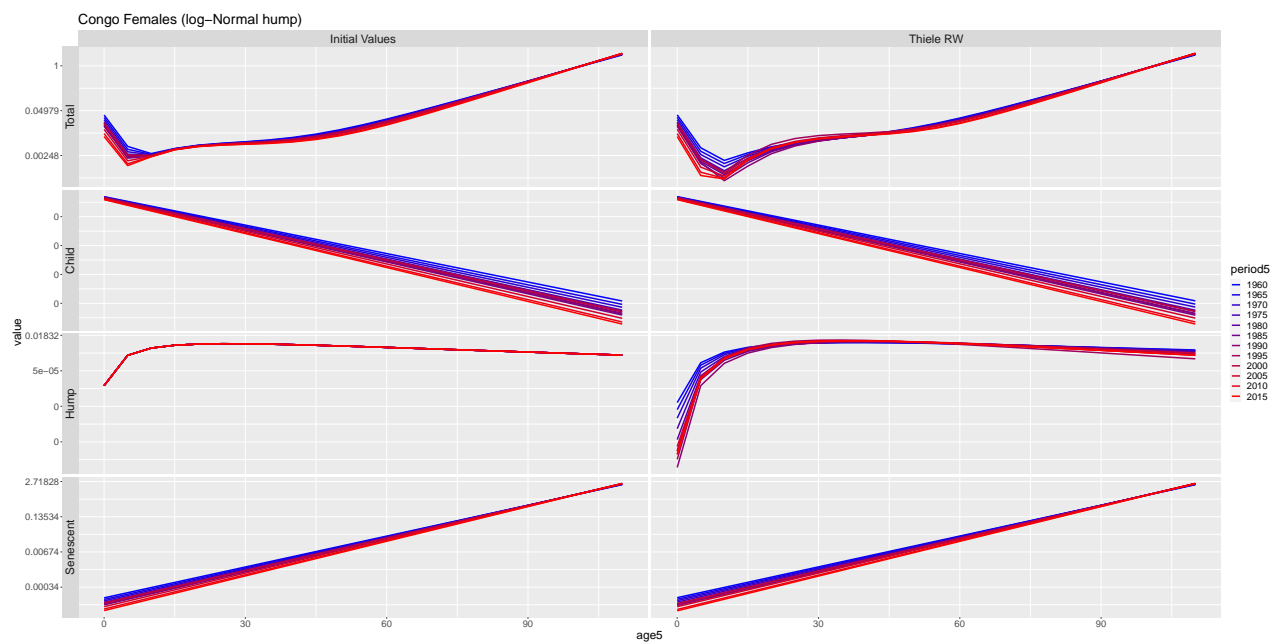


Figure 7: Thiele Decomposed

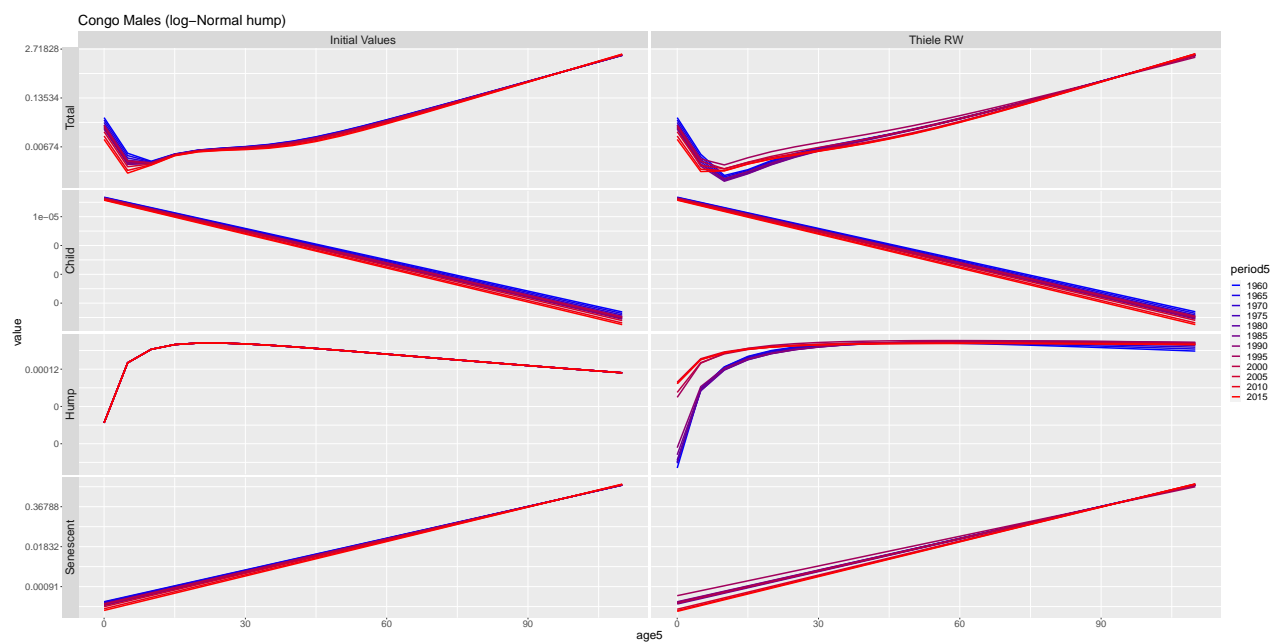


Figure 8: Thiele Decomposed

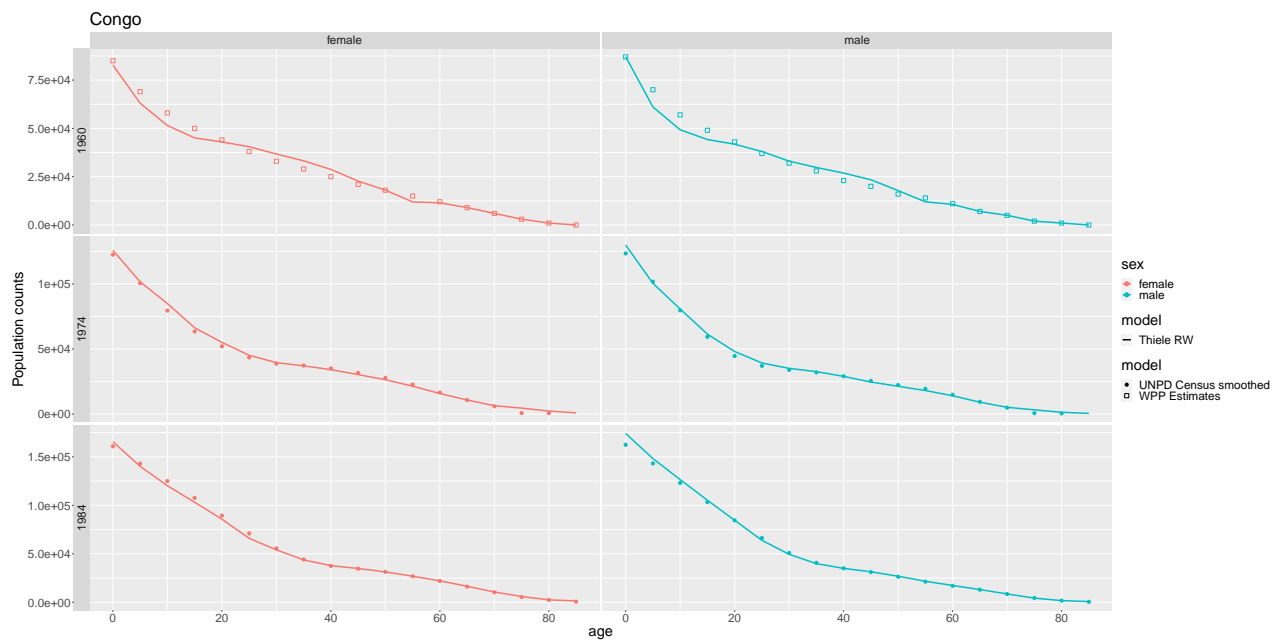


Figure 9: Population

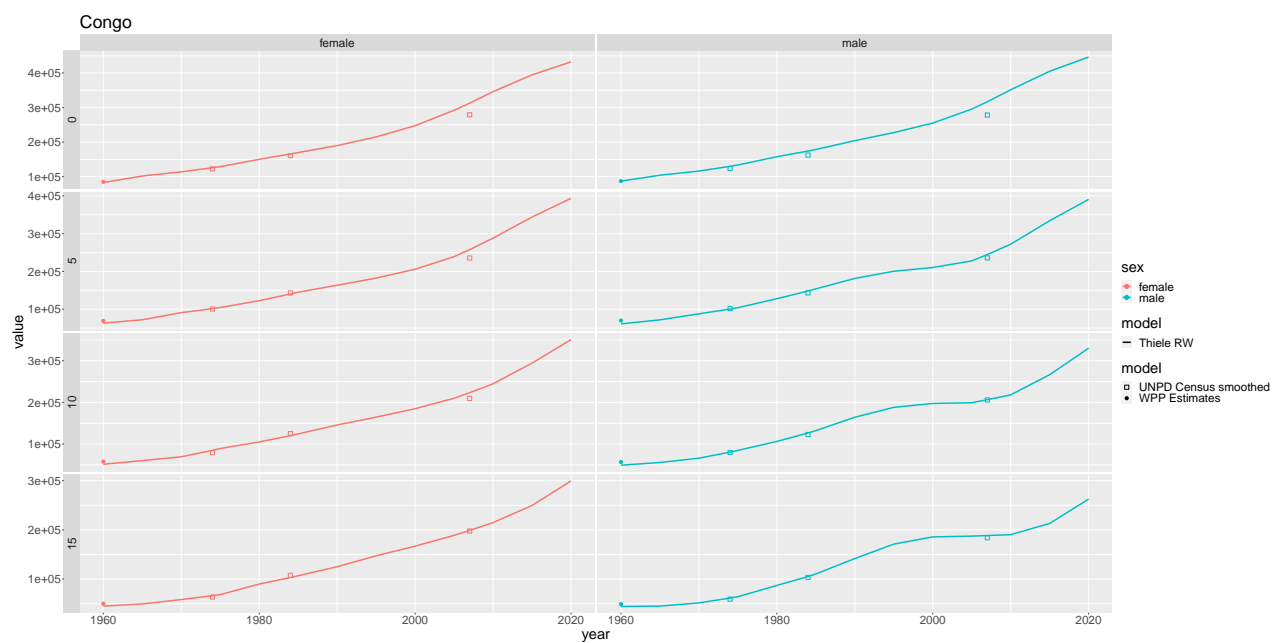


Figure 10: Population

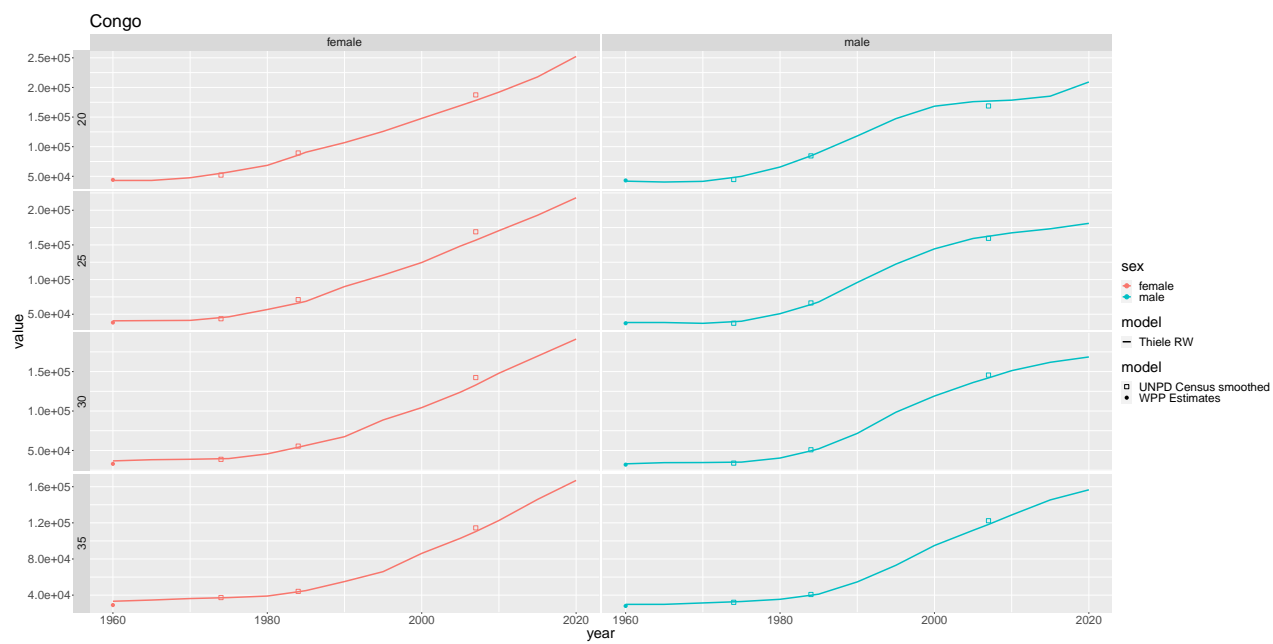


Figure 11: Population

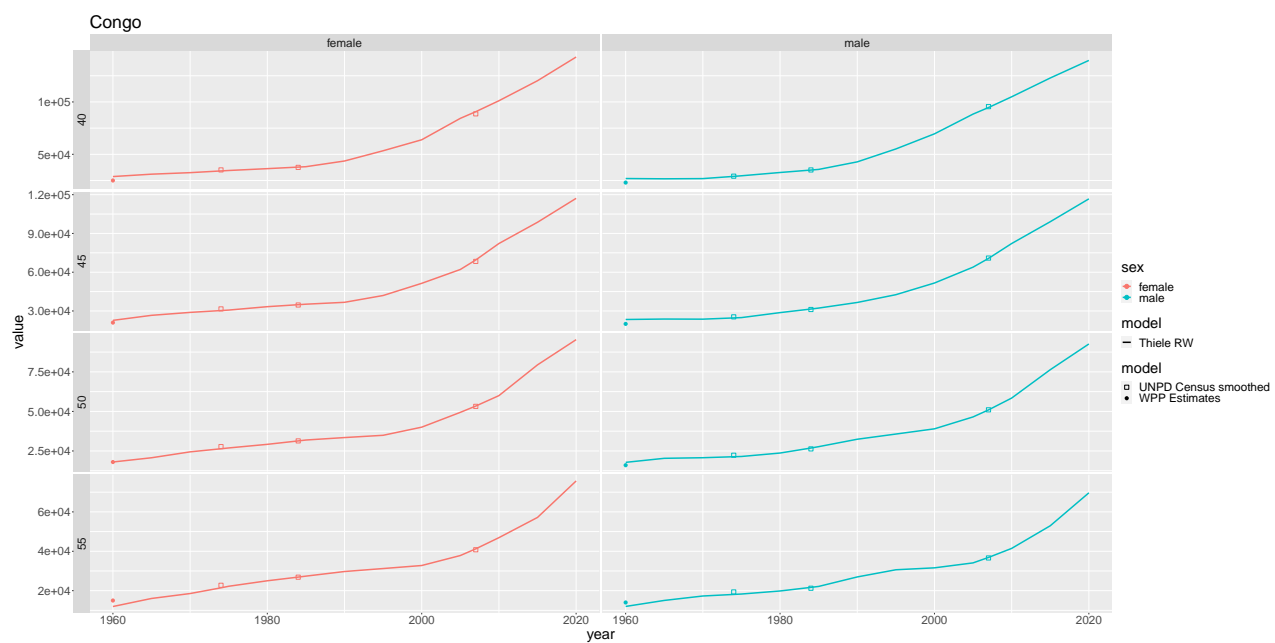


Figure 12: Population

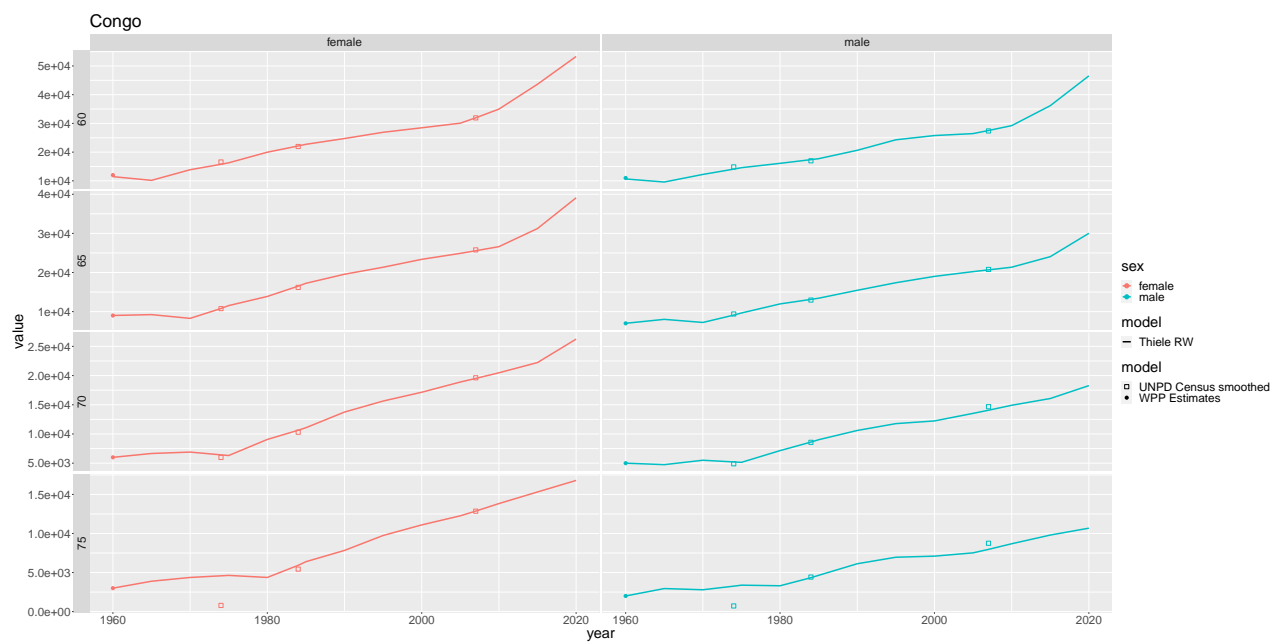


Figure 13: Population

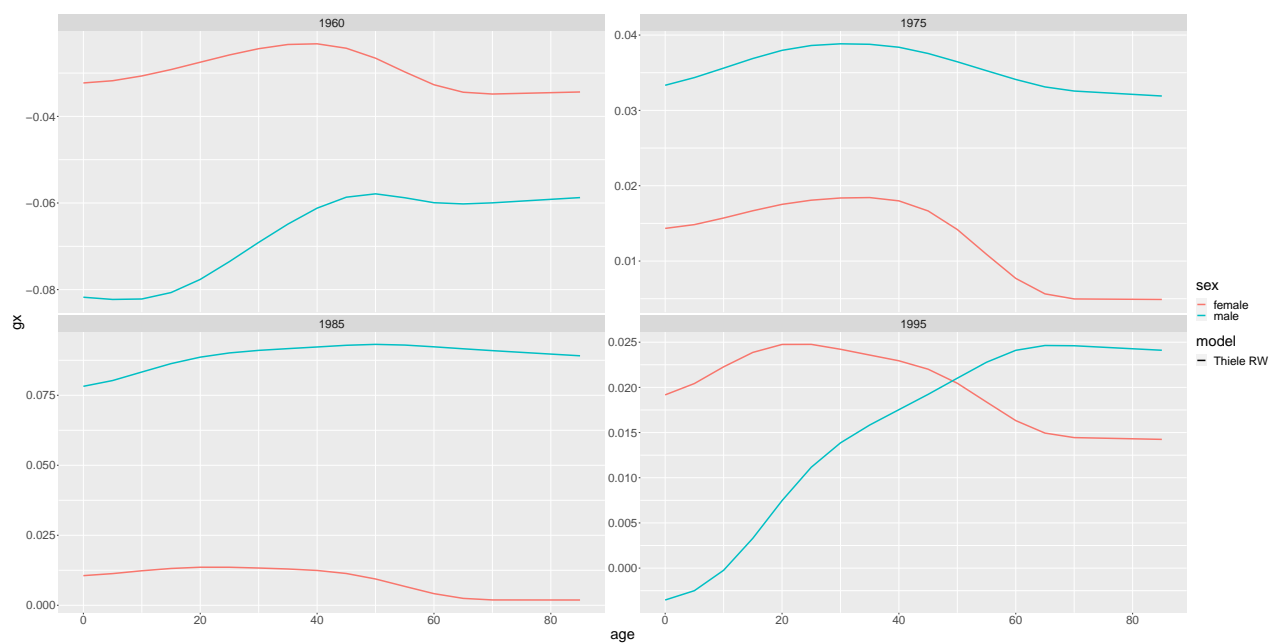


Figure 14: Migration

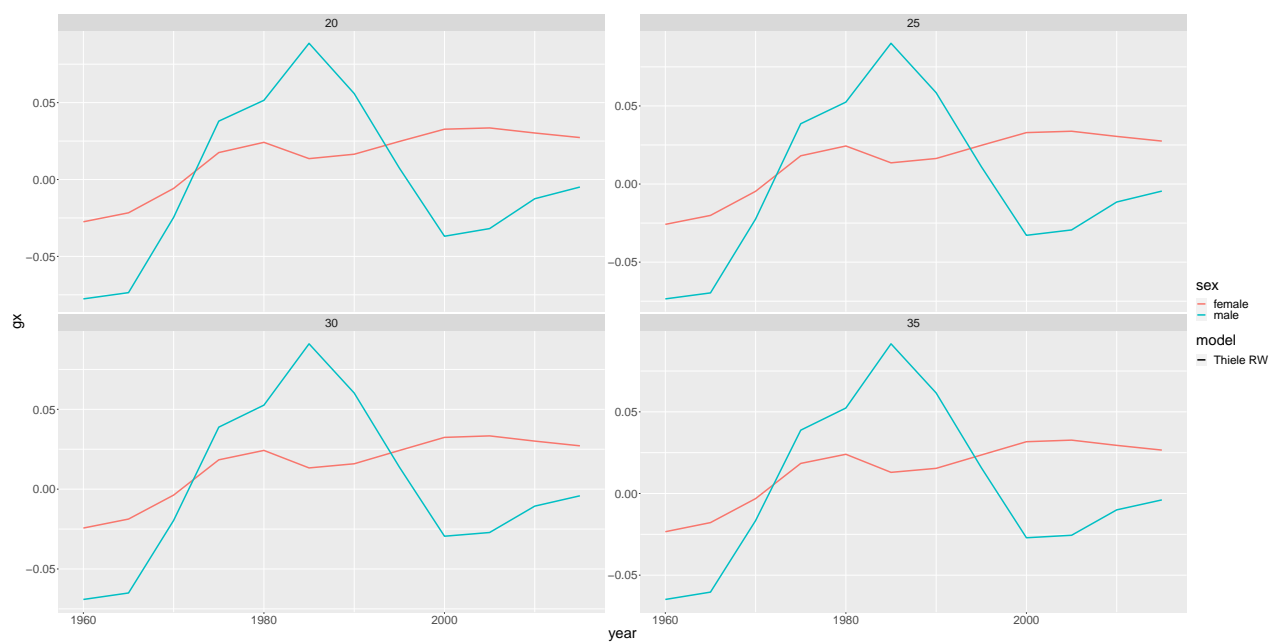


Figure 15: Migration

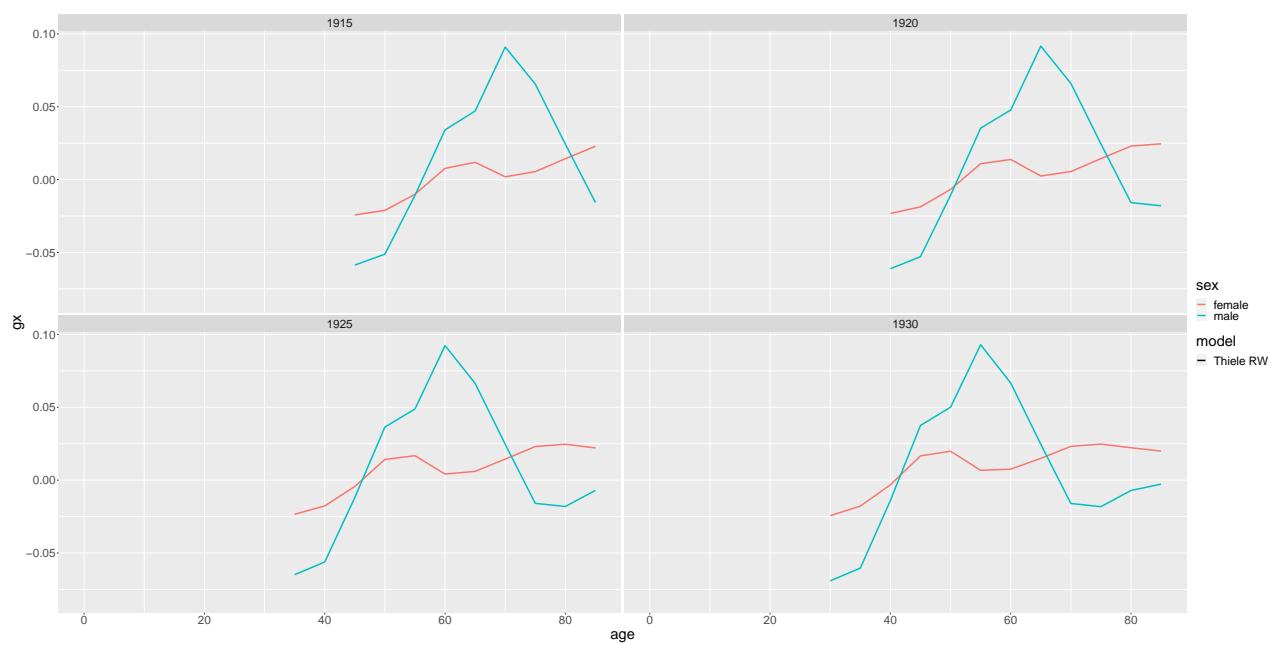


Figure 16: Migration

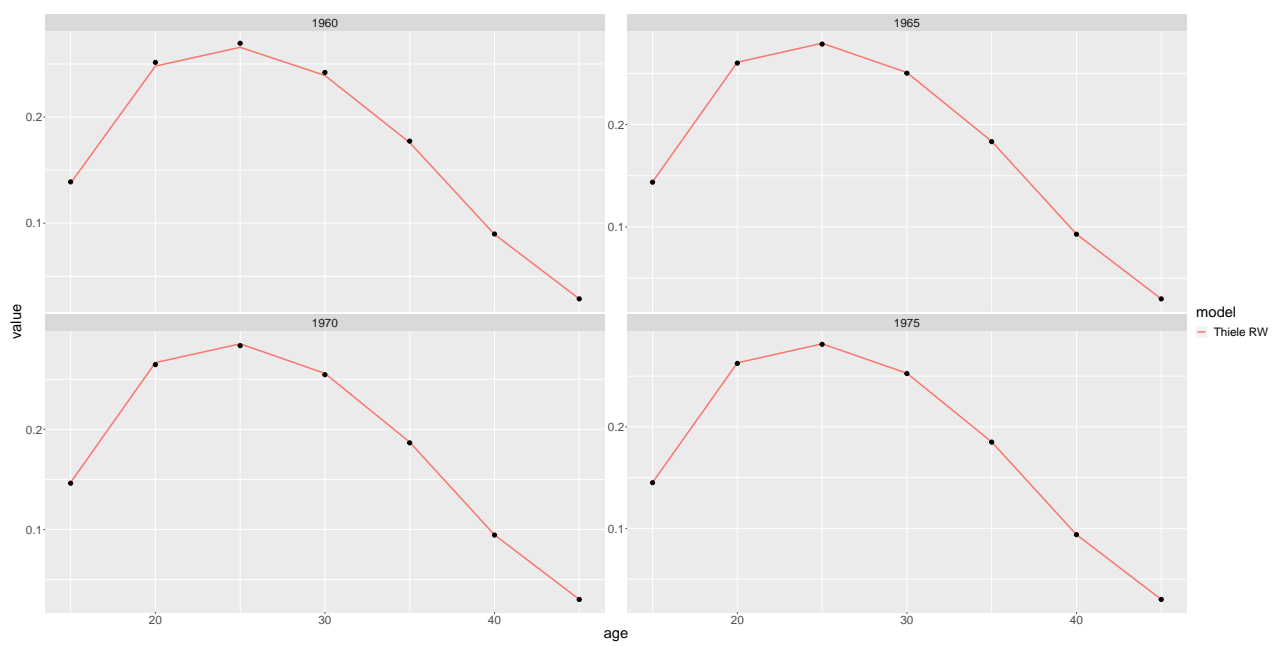


Figure 17: Fertility

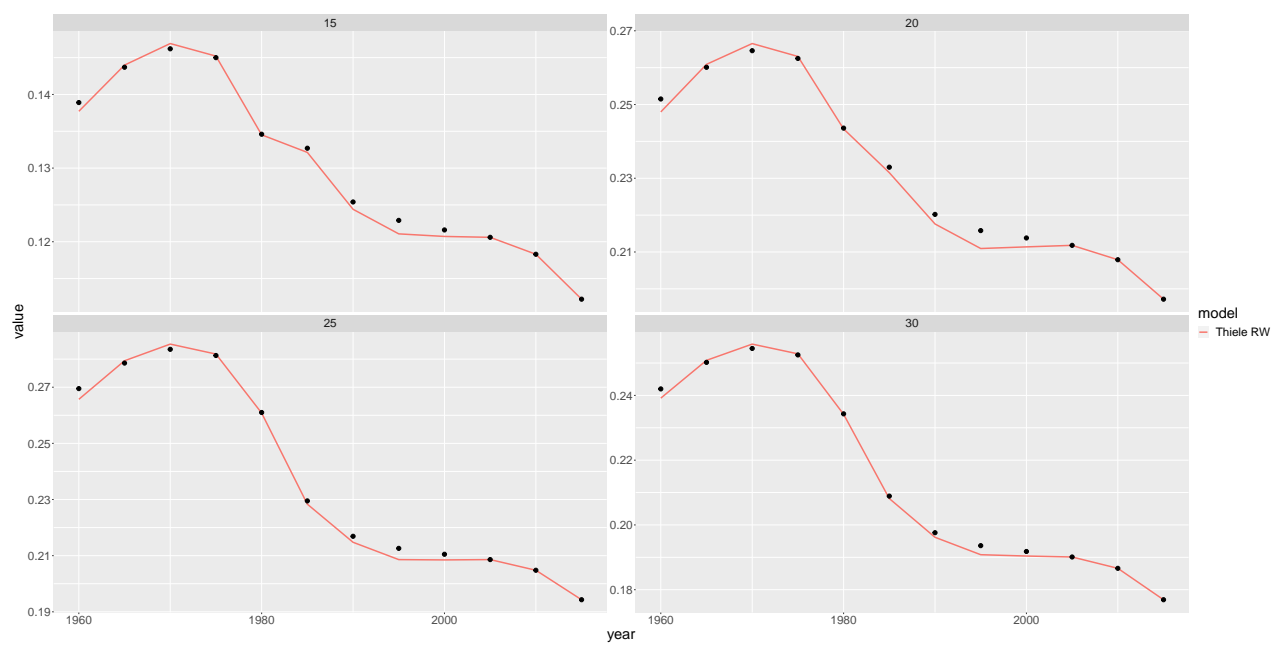


Figure 18: Fertility