

Tanzania

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

## # A tibble: 17 x 5
##   aggr.age  `1978`  `1988`  `2002`  `2012`
## *    <dbl>    <dbl>    <dbl>    <dbl>    <dbl>
## 1         0 1620439. 1957438. 2834362. 3635850.
## 2         5 1369953. 1773733. 2539282. 3296565.
## 3        10 1089957. 1540854. 2202643. 2873768.
## 4        15  883300. 1295889. 1906276. 2450178.
## 5        20  766631. 1089692. 1704896. 2133891.
## 6        25  663604.  903669. 1468123. 1844515.
## 7        30  539946.  706903. 1155183. 1540313.
## 8        35  436695.  551309.  877869. 1250323.
## 9        40  364001.  444116.  677439.  989003.
## 10       45  302415.  371648.  536720.  783460.
## 11       50  240309.  313168.  429372.  594154.
## 12       55  190693.  253842.  343468.  439408.
## 13       60  160488.  210015.  290374.  354147.
## 14       65  124638.  167048.  241783.  287392.
## 15       70   88231.  123601.  182349.  226011.
## 16       75   54700.   65823.  108149.  147489.
## 17       80   72469.  123847.  162567.  264165.
```

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

## # A tibble: 17 x 5
##   aggr.age  `1978`  `1988`  `2002`  `2012`
## *    <dbl>    <dbl>    <dbl>    <dbl>    <dbl>
## 1         0 1557979. 1926275. 2830545 3637982.
## 2         5 1351767. 1767748. 2552983 3299559.
## 3        10 1091463. 1525565. 2200531 2839494.
## 4        15  833976. 1203926. 1789534 2290897.
## 5        20  656206.  919964. 1468786 1843461.
## 6        25  566192.  752381. 1277250. 1567661.
## 7        30  491229.  620802. 1077299. 1372887.
## 8        35  414514.  497000.  851456 1172351.
## 9        40  350720.  402927.  660490.  947272.
## 10       45  298970.  341751.  513774.  747035.
## 11       50  248216.  292558.  406410.  581300.
## 12       55  204132.  243132.  324059.  442948.
## 13       60  168723.  204247.  269689.  347881.
## 14       65  131270.  169118.  223754.  271163.
## 15       70   99263.  130443.  171833.  209146.
## 16       75   66150.   78583.  113205.  144643.
## 17       80   88783.  123726.  145641.  209888.
```

Thiele log-Normal Hump RW

```
##   user  system elapsed
## 36.22   0.54   37.16

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

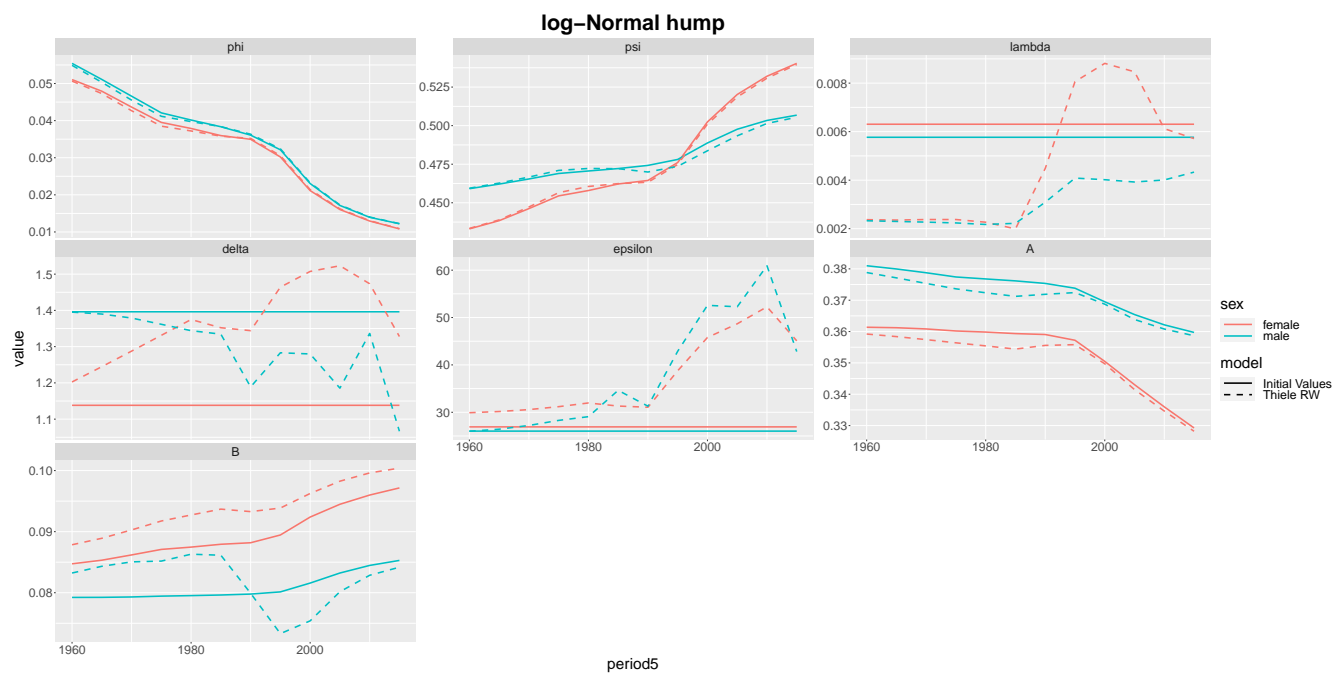


Figure 1: Estimated parameters



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

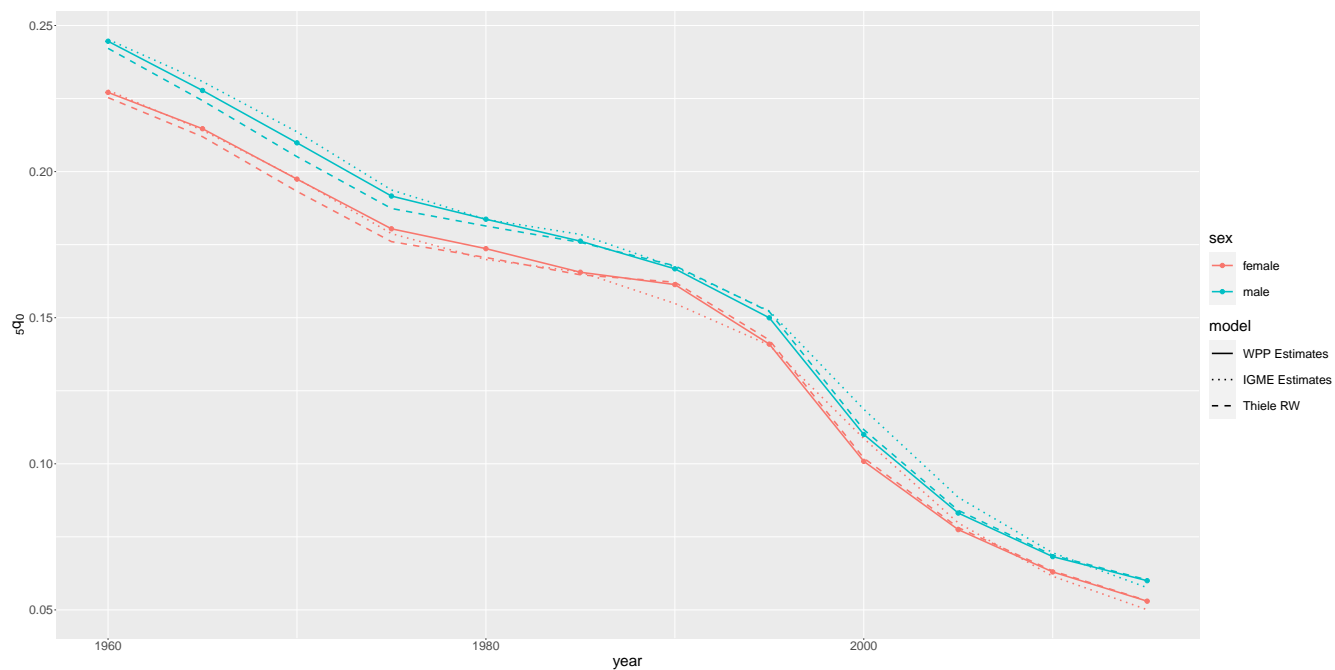


Figure 3: Estimated $_{5}q_0$

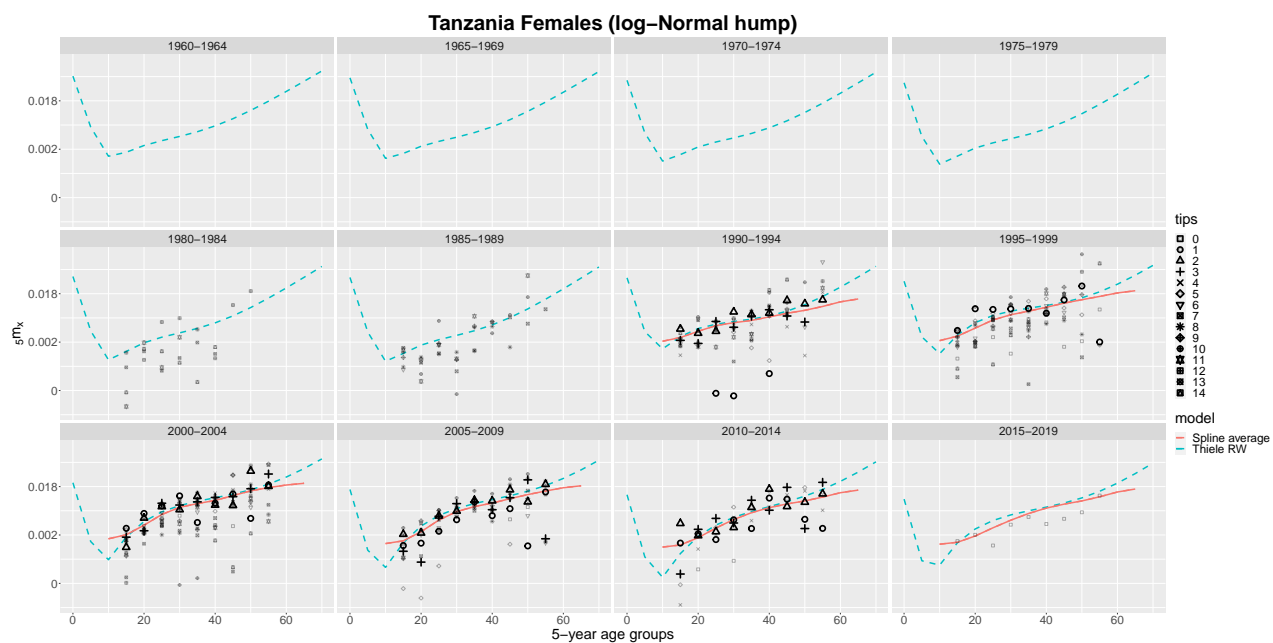


Figure 4: Mortality Schedules

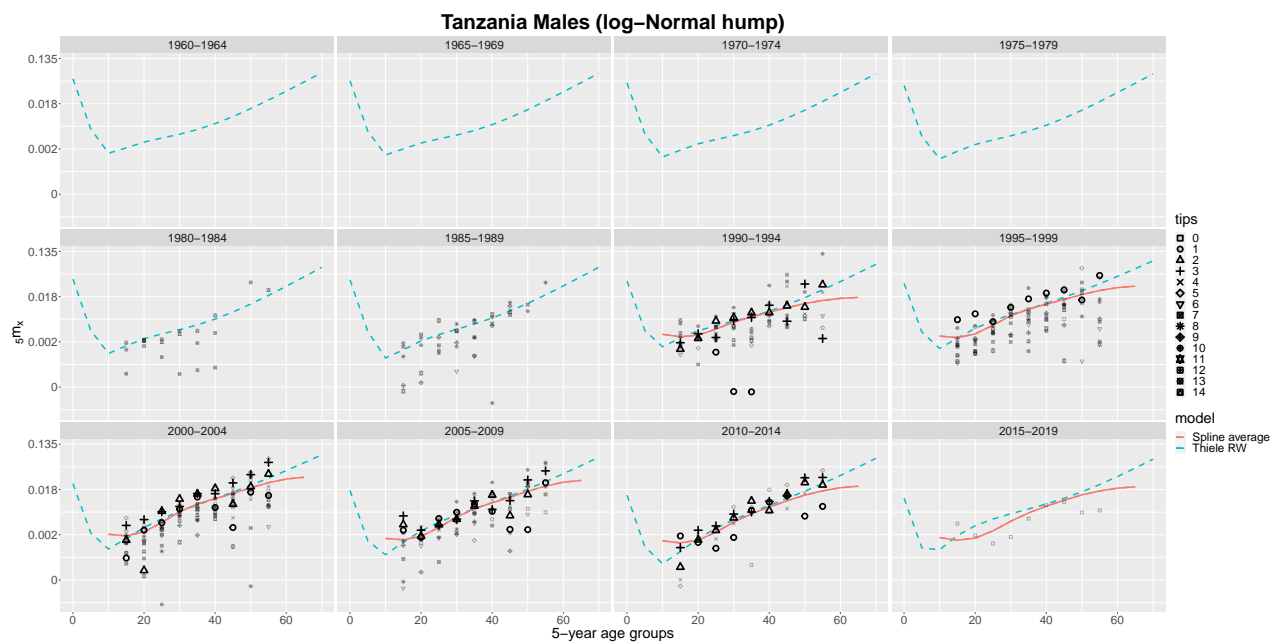


Figure 5: Mortality Schedules

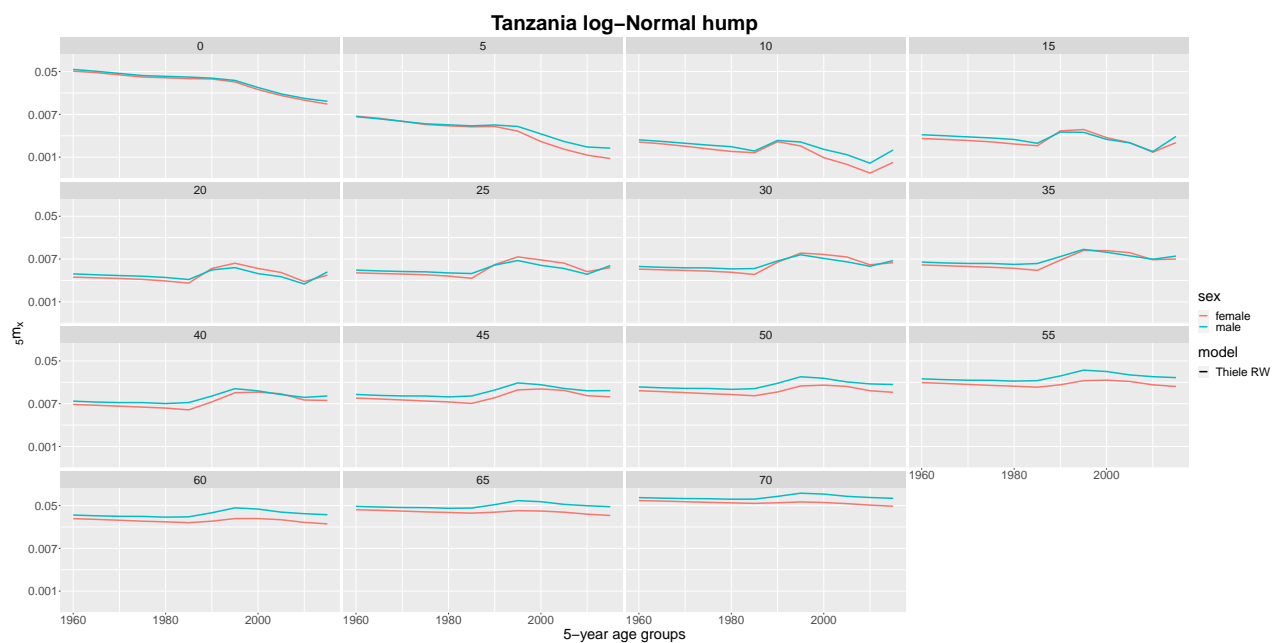


Figure 6: Mortality Schedules

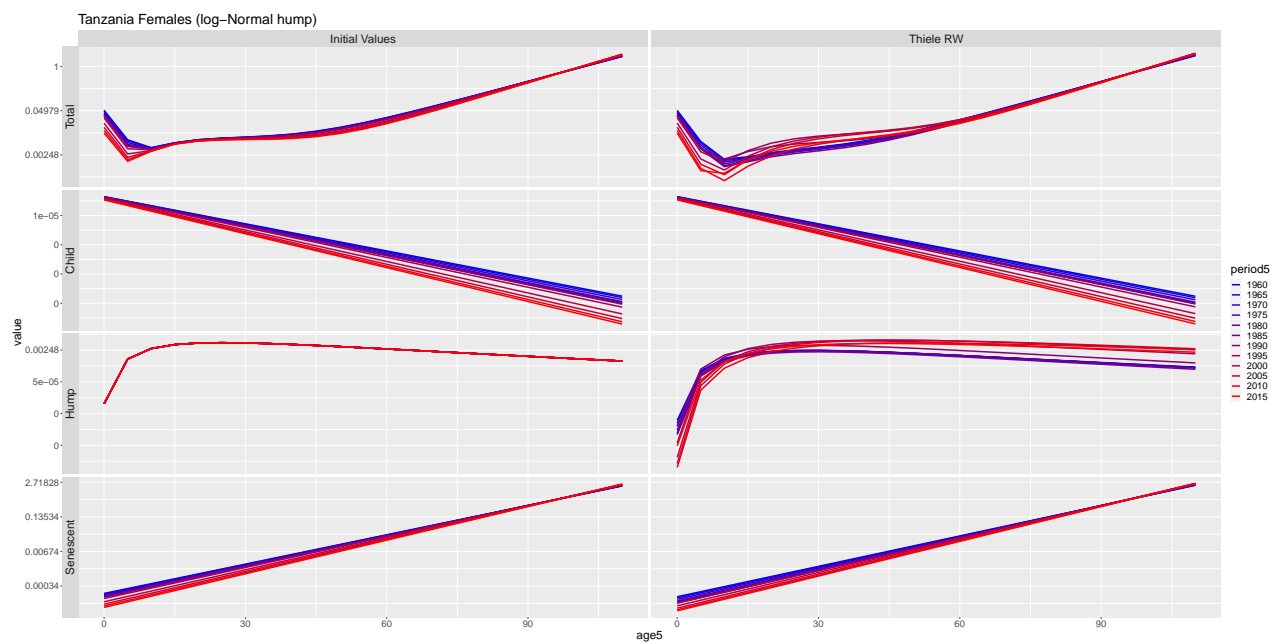


Figure 7: Thiele Decomposed

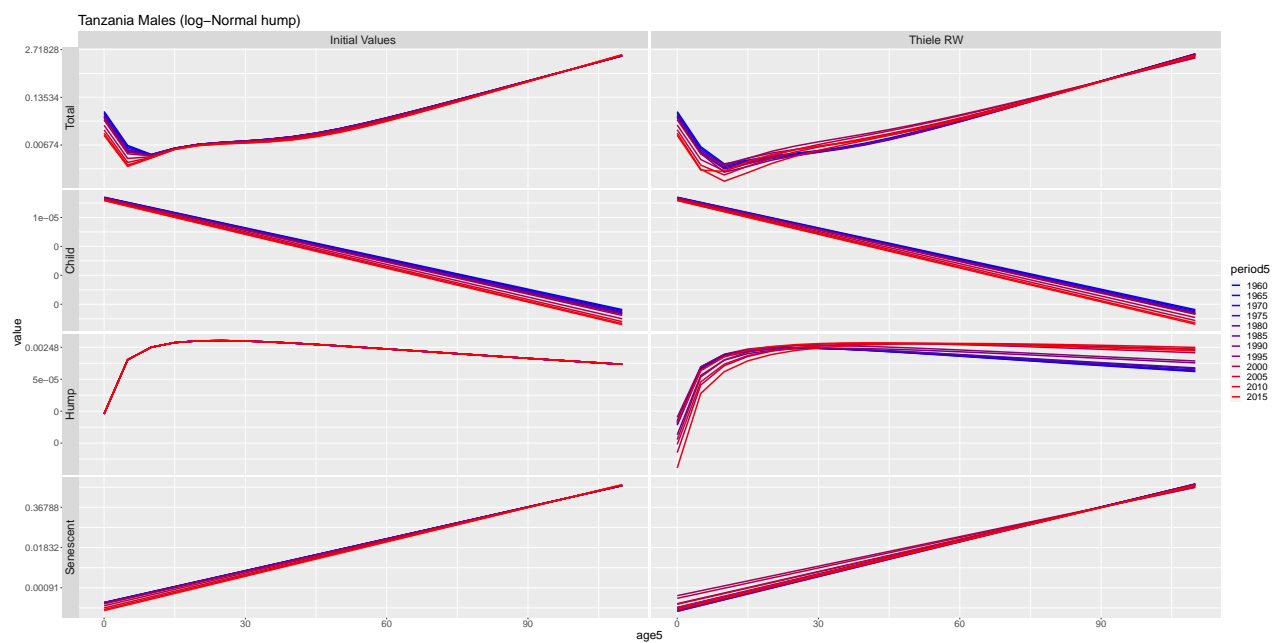


Figure 8: Thiele Decomposed

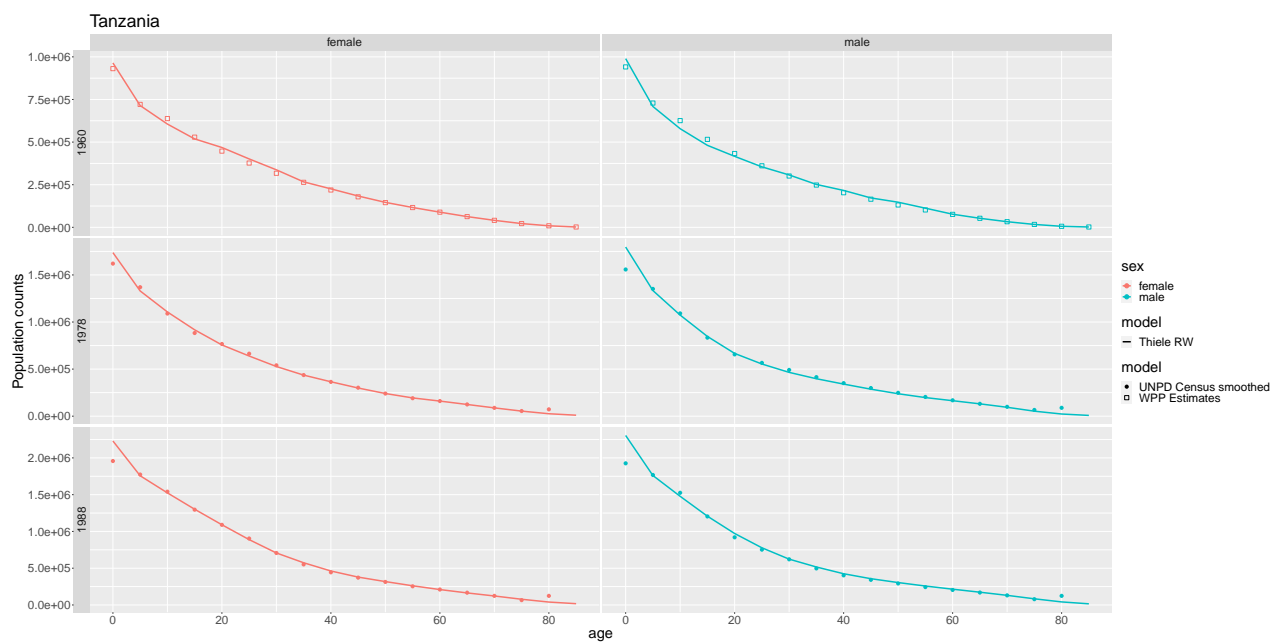


Figure 9: Population

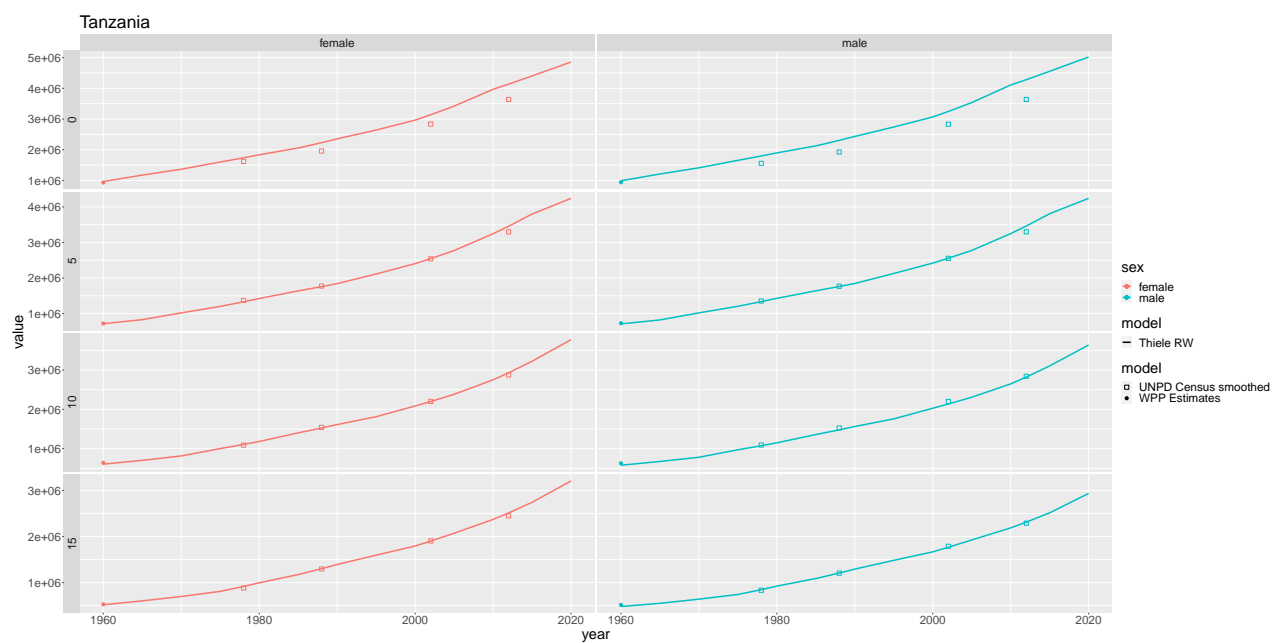


Figure 10: Population

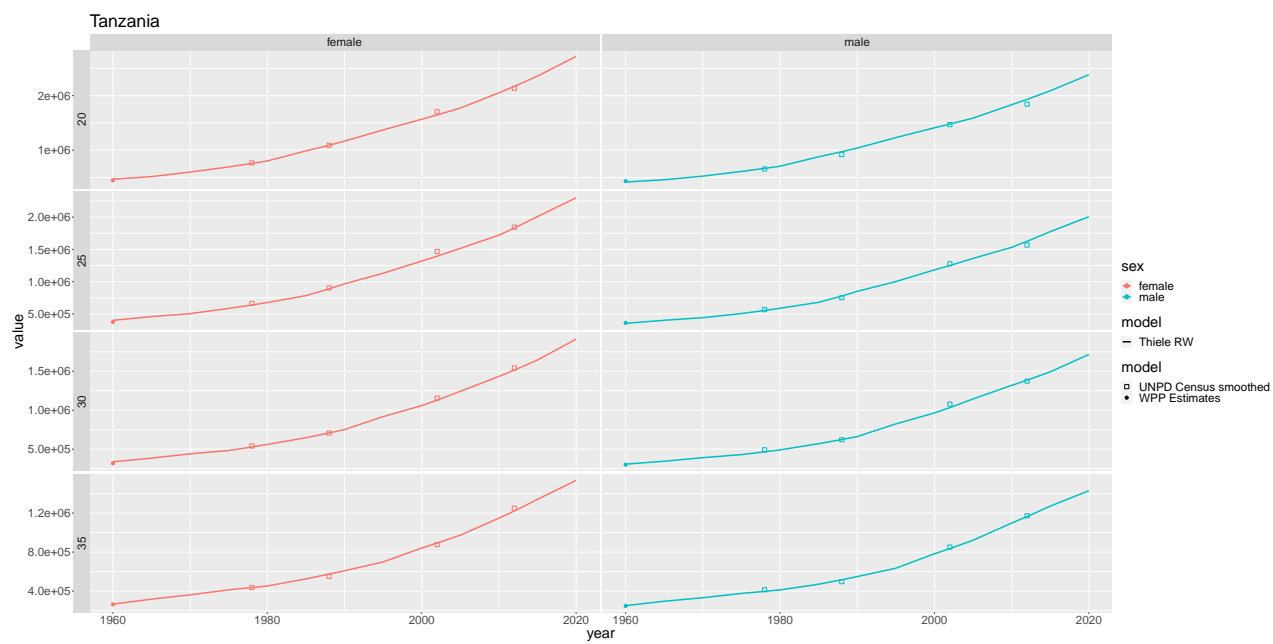


Figure 11: Population

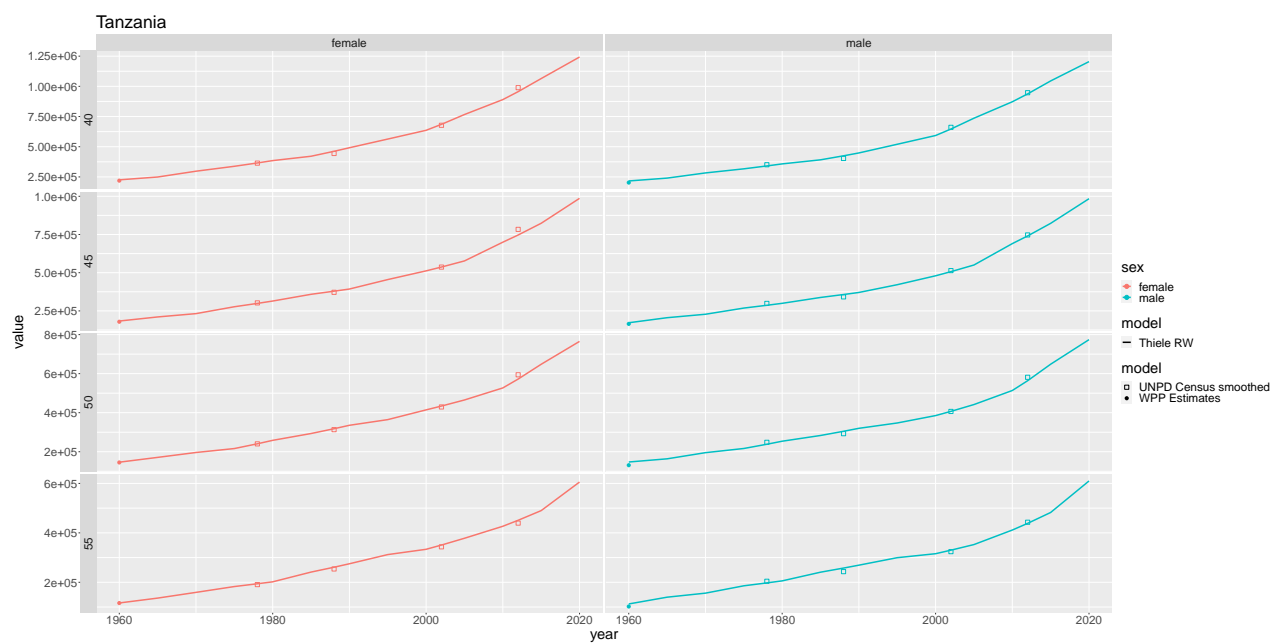


Figure 12: Population

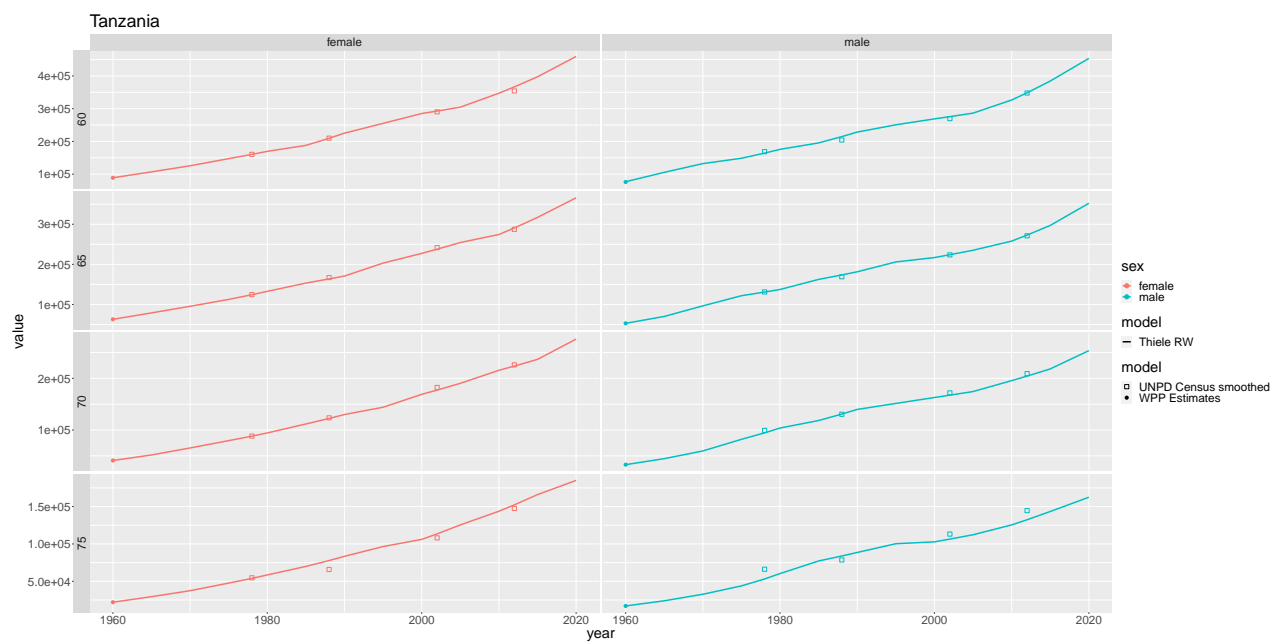


Figure 13: Population

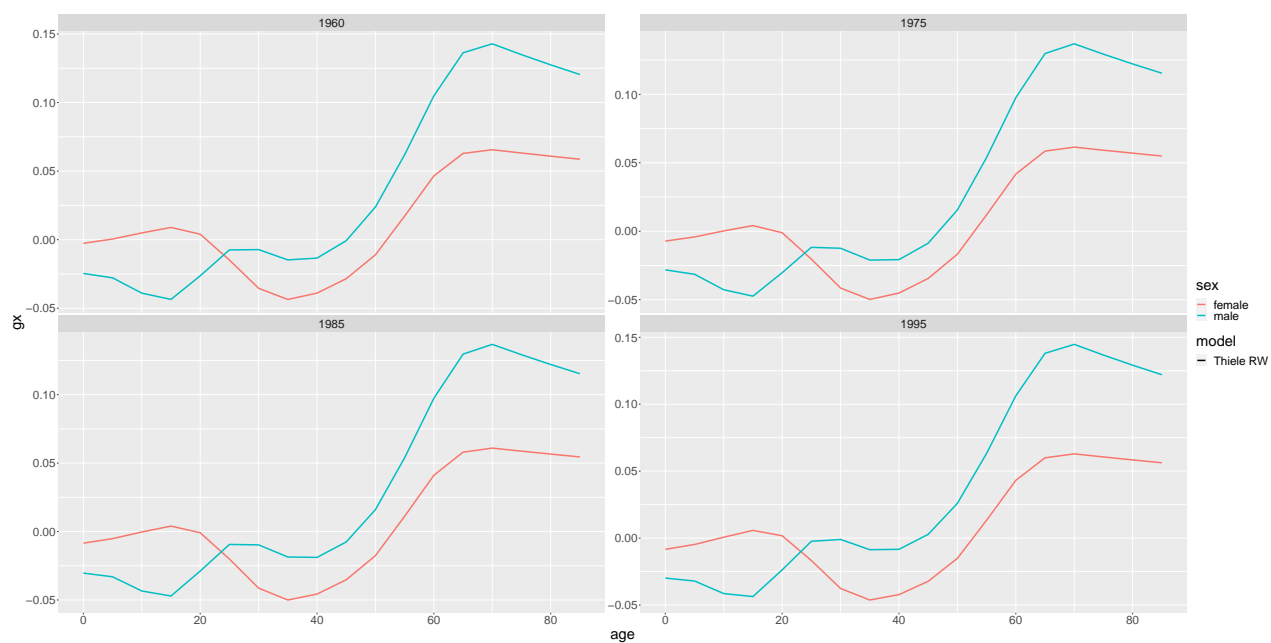


Figure 14: Migration

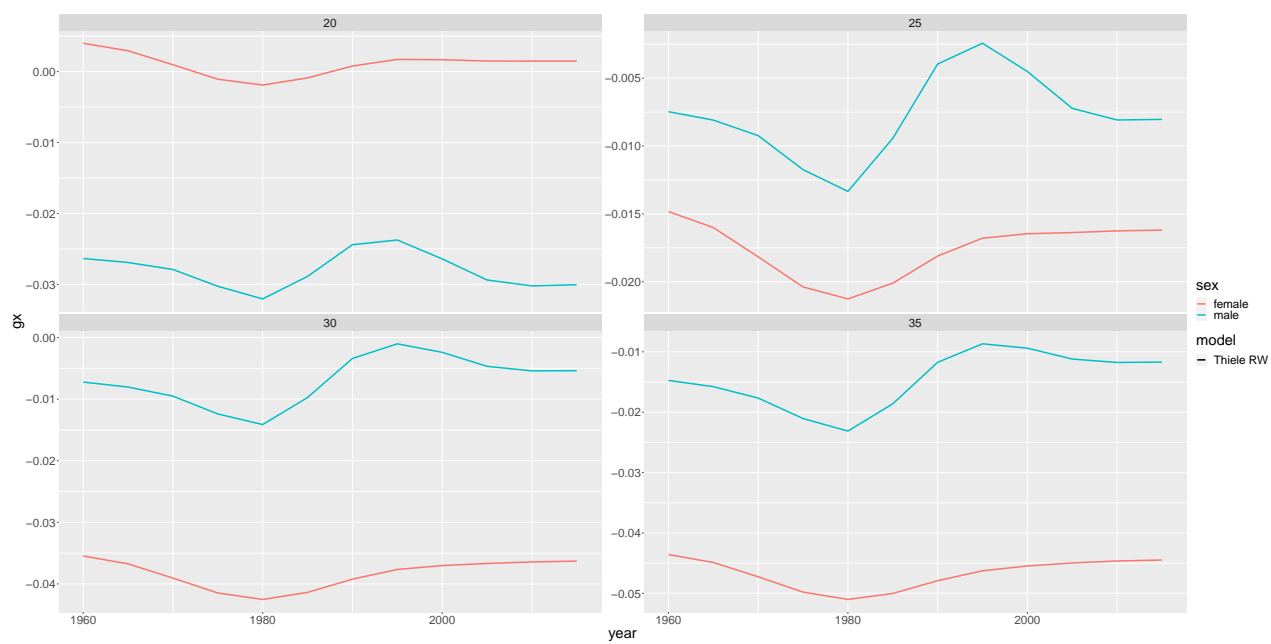


Figure 15: Migration

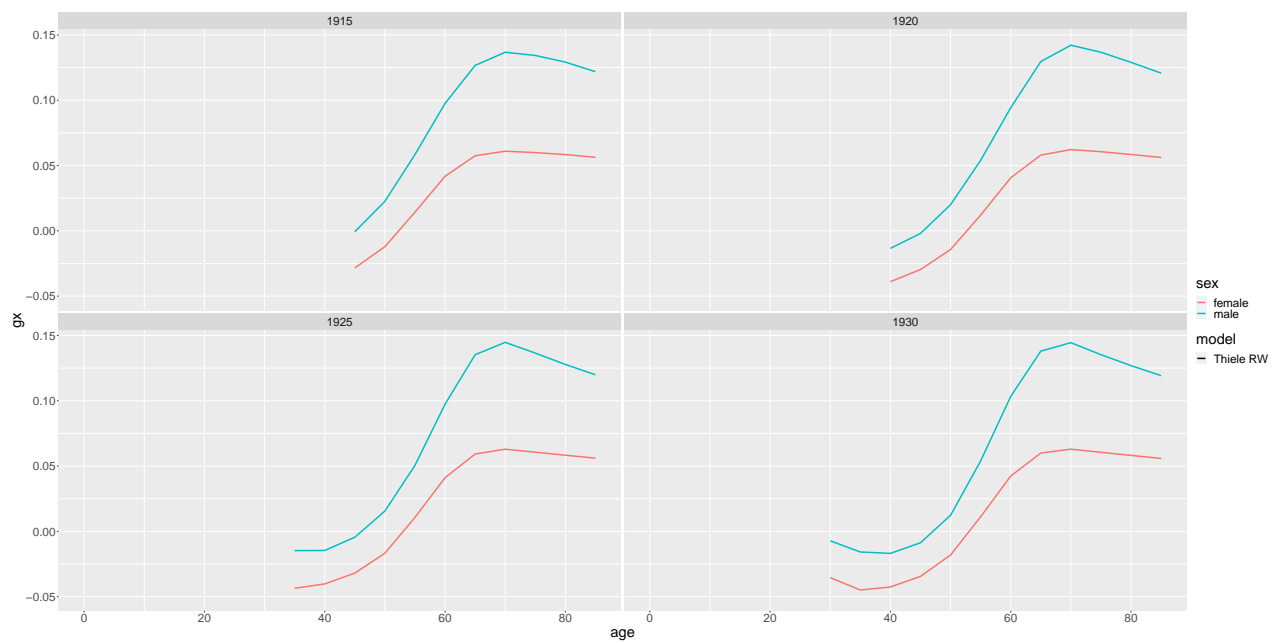


Figure 16: Migration

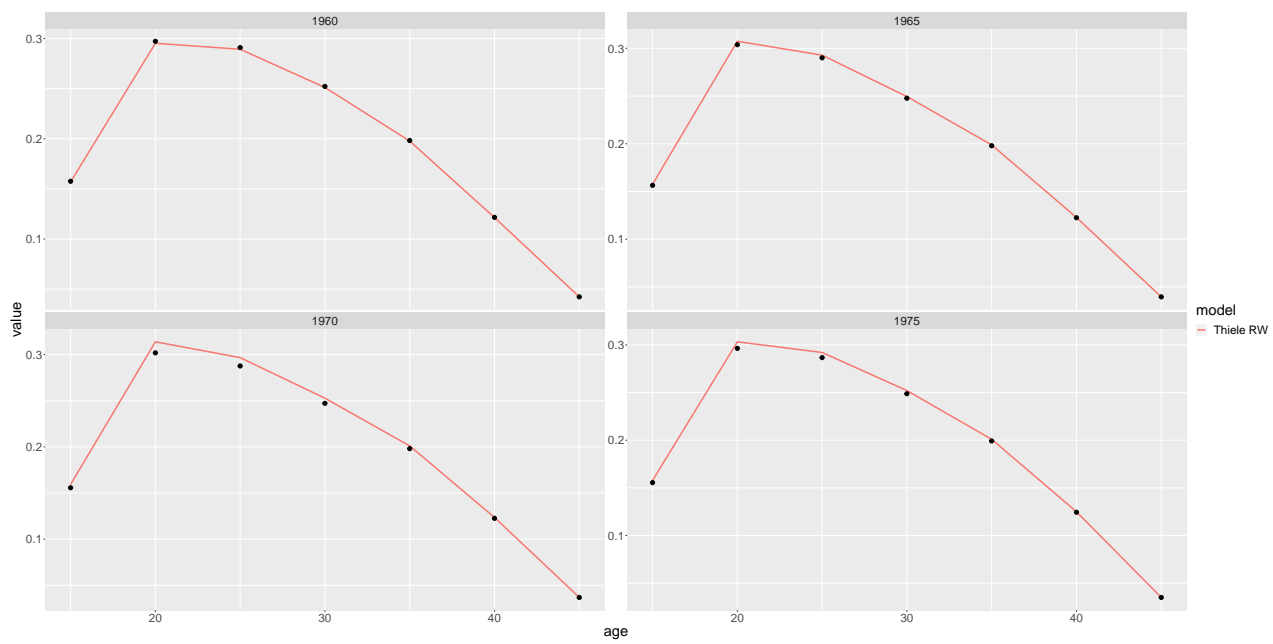


Figure 17: Fertility

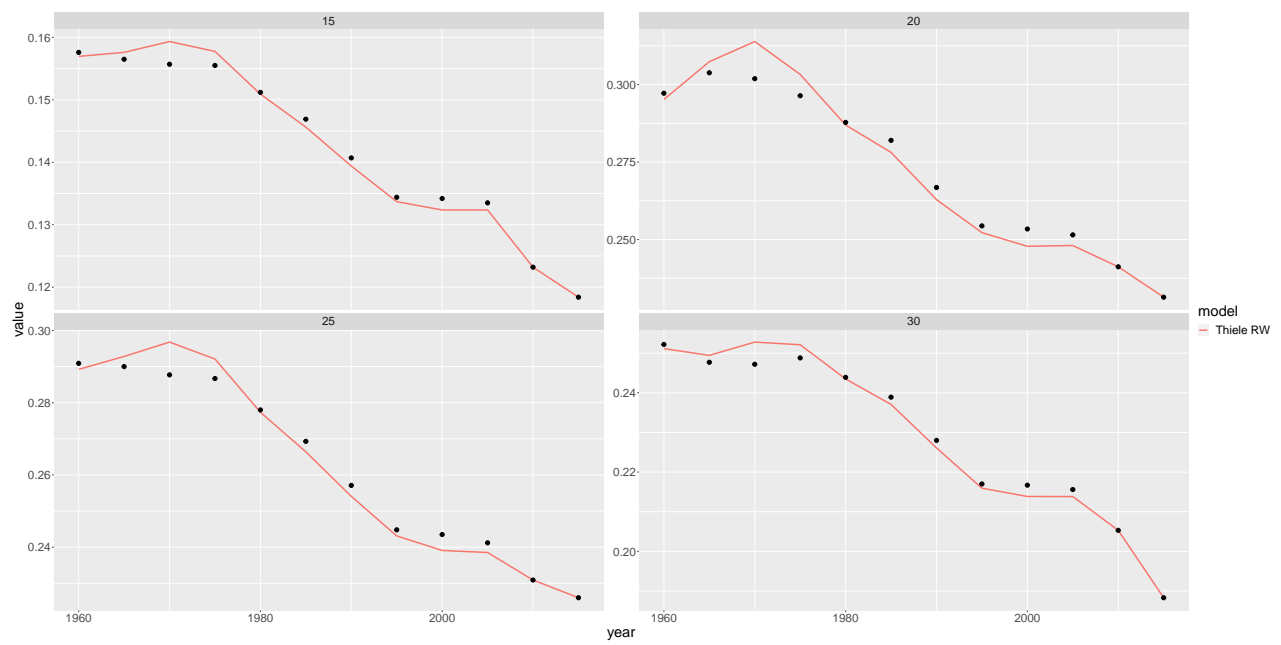


Figure 18: Fertility