# Madagascar

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

## # A tibble: 18 x 3
##    aggr.age    `1993`    `2018`
##  *    <dbl>     <dbl>     <dbl>
##  1        0 1112652   1869627
##  2        5  887806.  1762906.
##  3       10  762170.  1687188.
##  4       15  681774.  1558576
##  5       20  578889.  1303623
##  6       25  476792.  1037778.
##  7       30  394886.   843737
##  8       35  317271.   711511.
##  9       40  242574.   596038.
## 10       45  186136.   478968.
## 11       50  153940.   377220.
## 12       55  130986.   293019.
## 13       60  105274    221754.
## 14       65   77069    151646.
## 15       70   51143.    94472
## 16       75   26121     58834.
## 17       80   26112     36225.
## 18       85      NA     37896

## [1] "Census Males"

## # A tibble: 18 x 3
##    aggr.age    `1993`    `2018`
##  *    <dbl>     <dbl>     <dbl>
##  1        0 1121953   1854072
##  2        5  904633   1781609.
##  3       10  770146.  1689022.
##  4       15  665691.  1487291
##  5       20  549330.  1195236.
##  6       25  451859    955468.
##  7       30  383614.   793154.
##  8       35  317992.   681935
##  9       40  242723.   587396.
## 10       45  178846.   481191.
## 11       50  144310    379979
## 12       55  124371.   295242.
## 13       60  103204.   222801
## 14       65   79529.   149608.
## 15       70   55241.    88961.
## 16       75   28062     52439.
## 17       80   23935     30494.
## 18       85      NA     29556.
```

*Thiele log-Normal Hump RW*

```
##    user  system elapsed
##   44.28    0.65   46.47
```
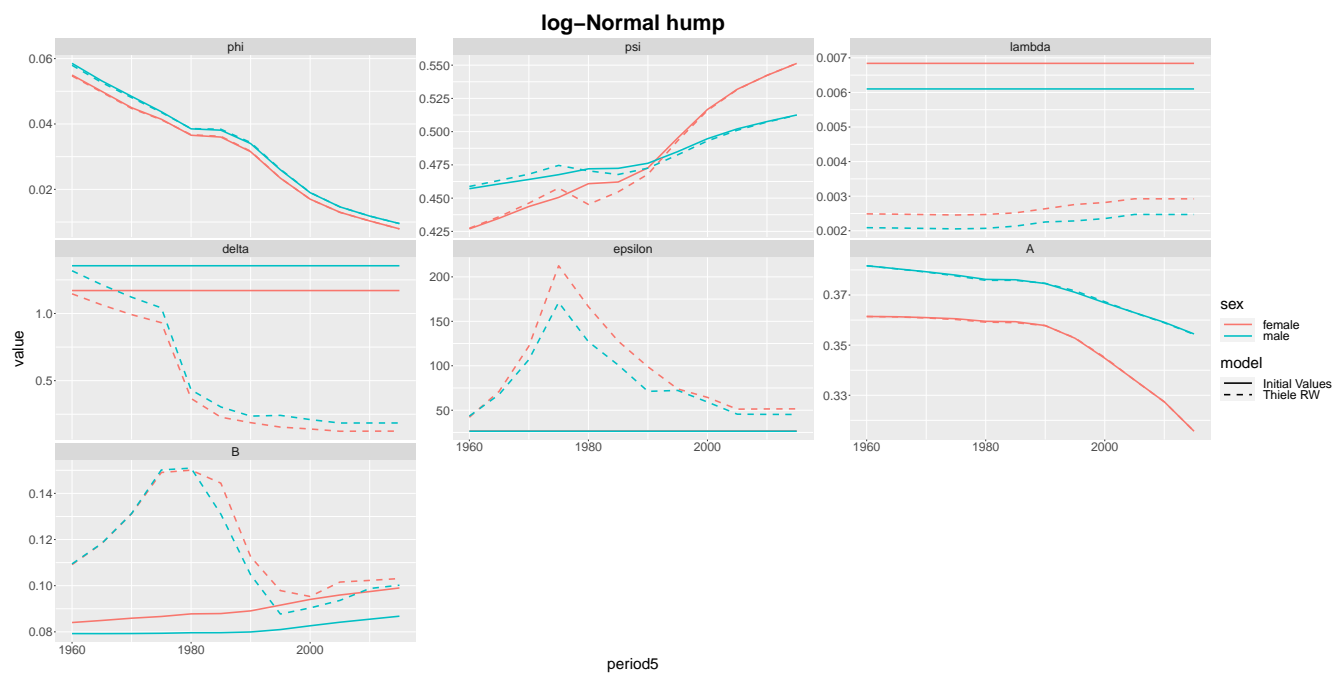
```
## [1] "relative convergence (4)"
```
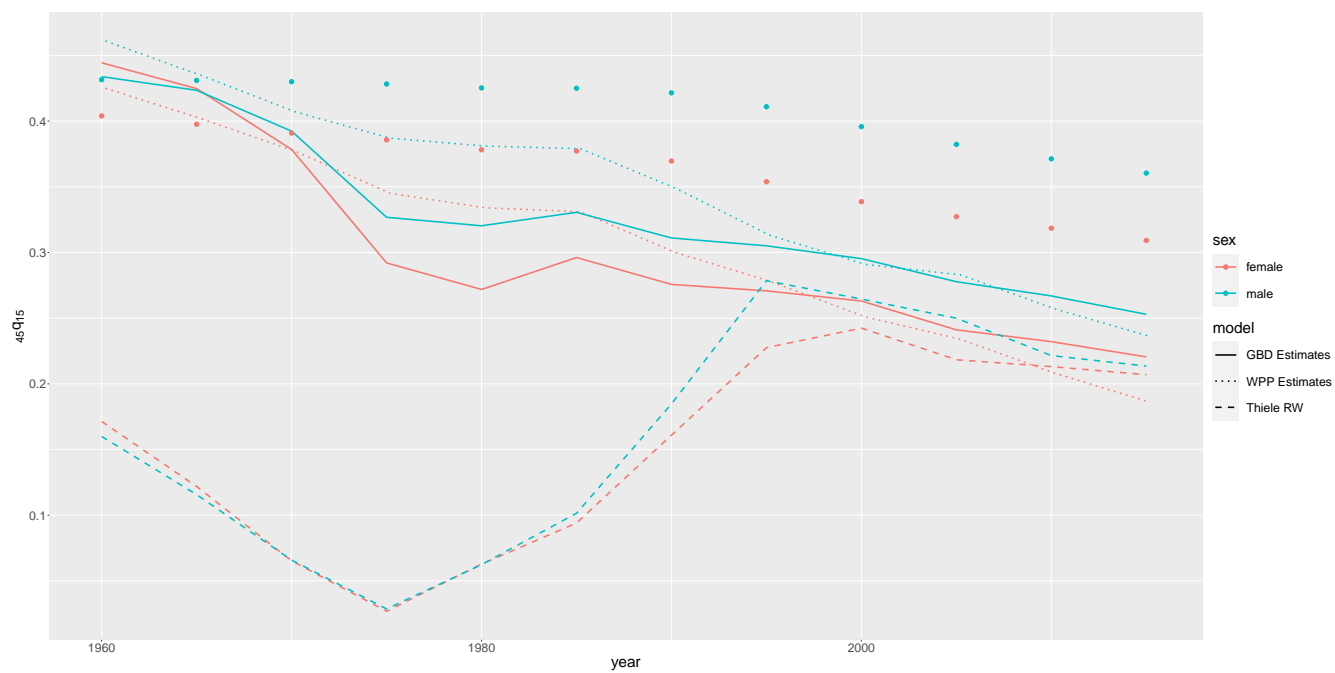
Figure 1: Estimated parameters

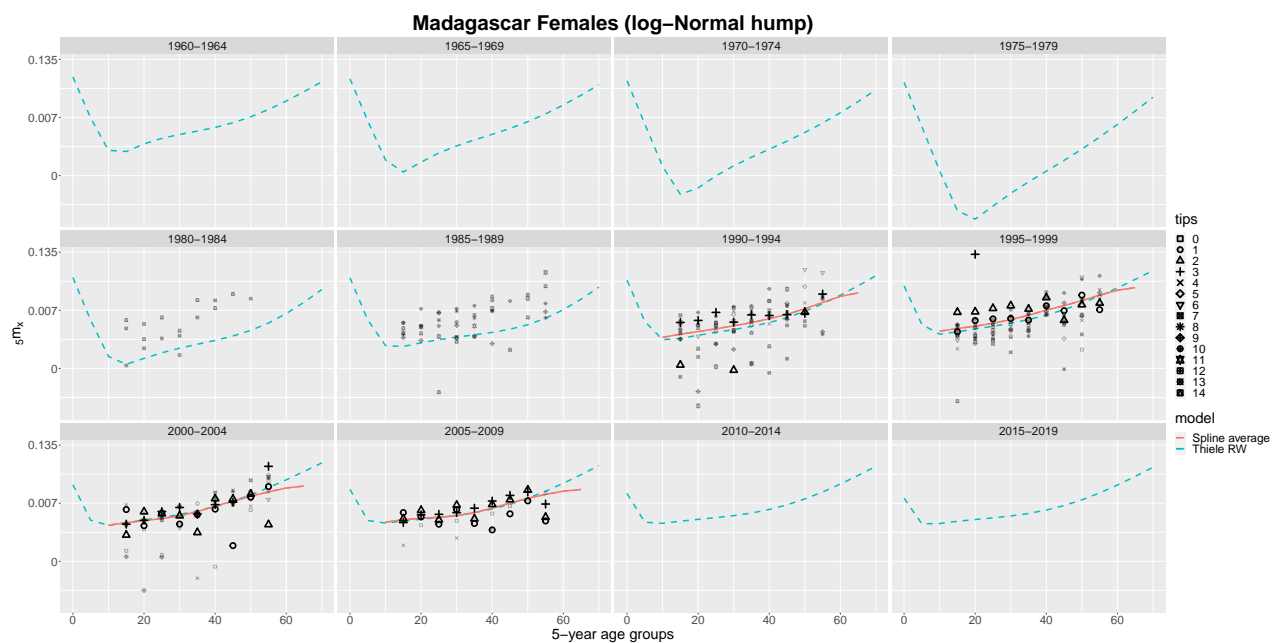Figure 2: Estimated $_{45}q_{15}$



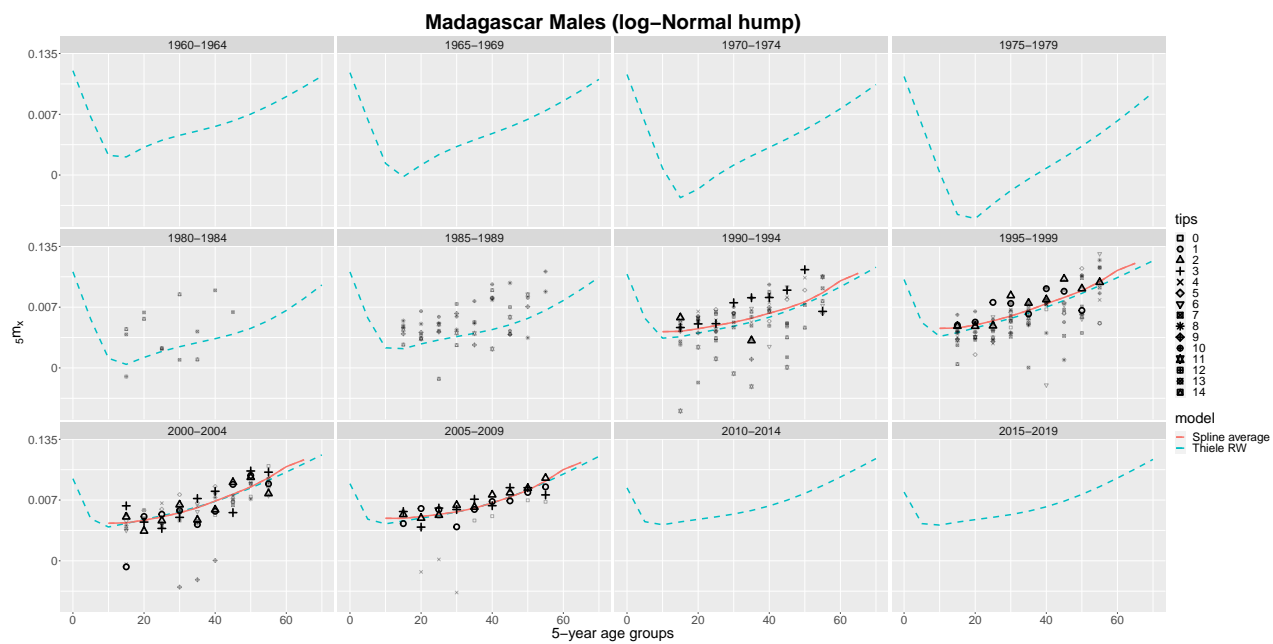Figure 3: Estimated $_5q_0$

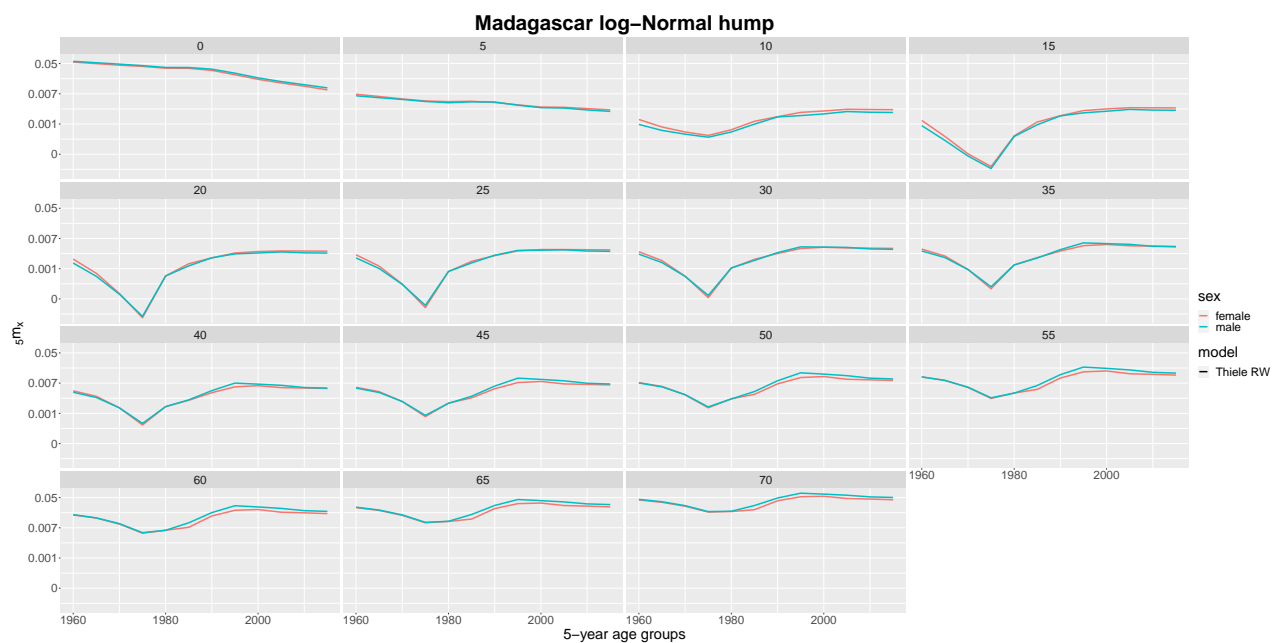Figure 4: Mortality Schedules



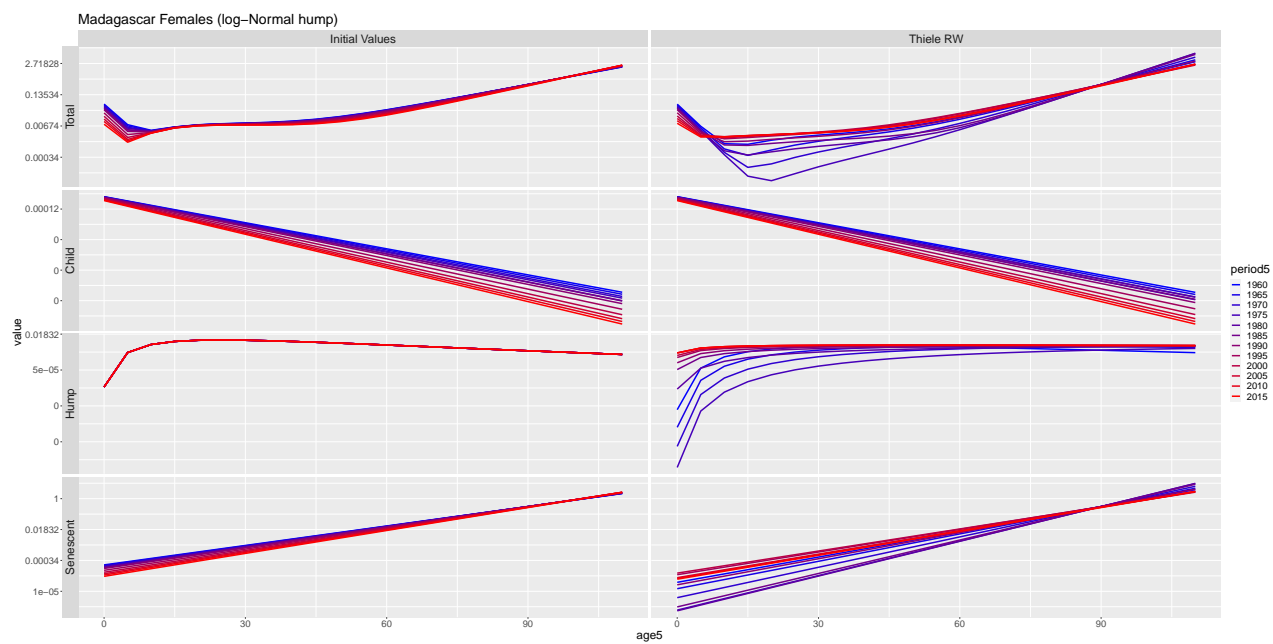Figure 5: Mortality Schedules

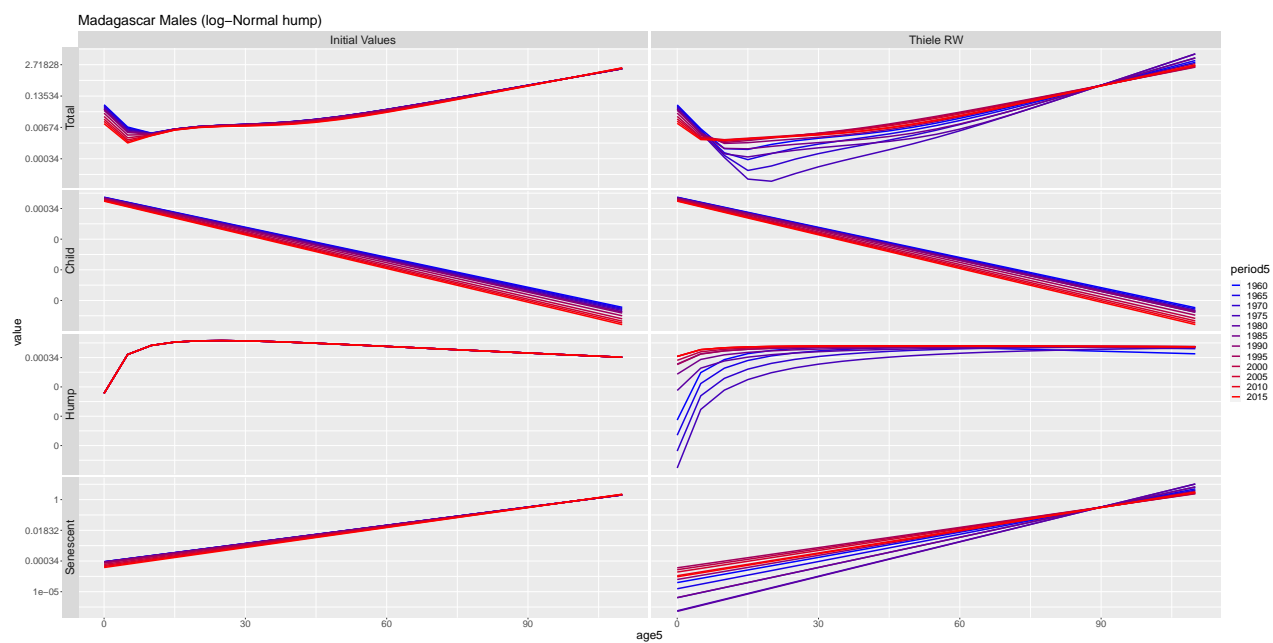Figure 6: Mortality Schedules
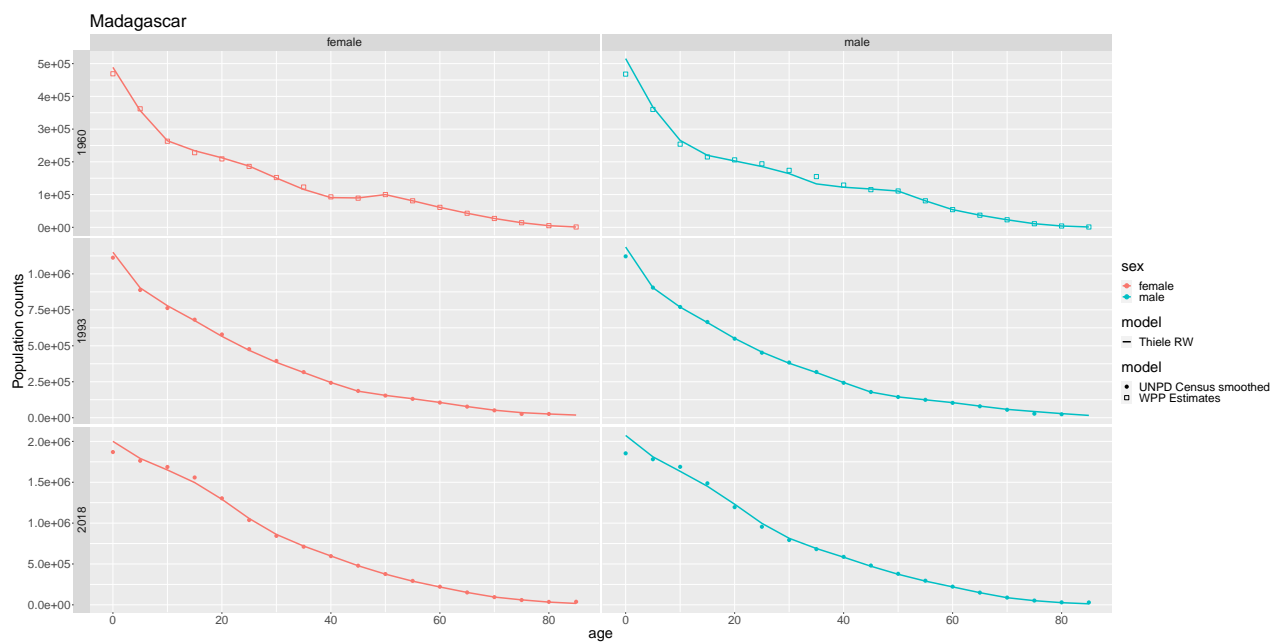


Figure 7: Thiele Decomposed
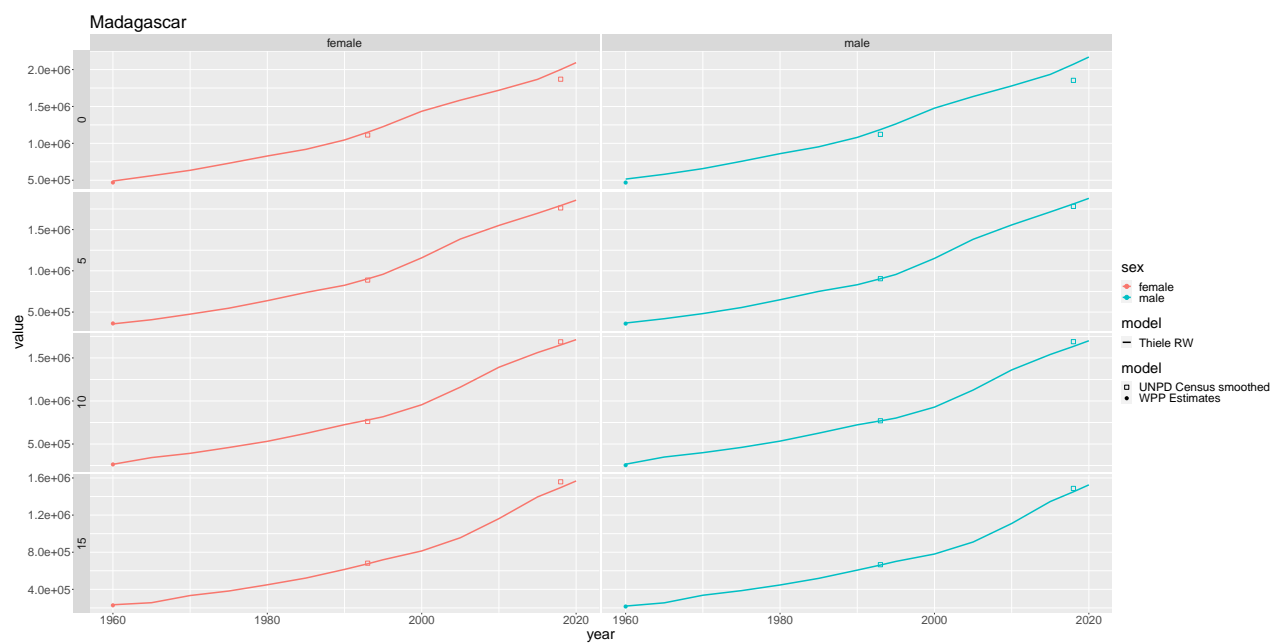
Figure 8: Thiele Decomposed
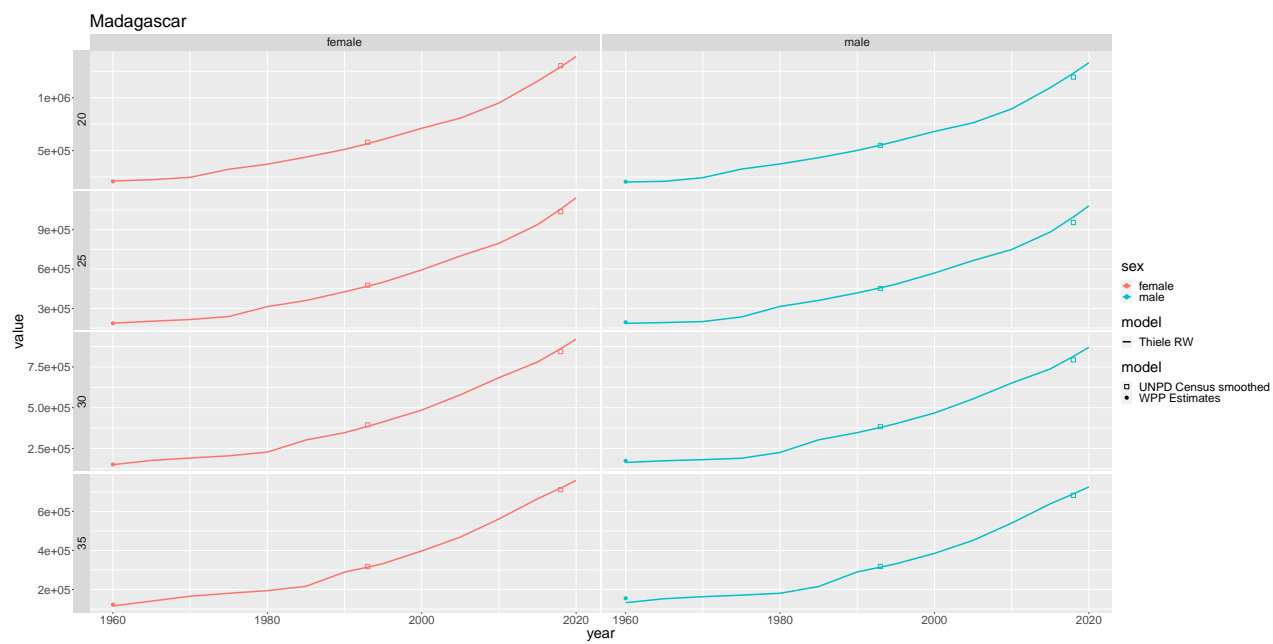


Figure 9: Population
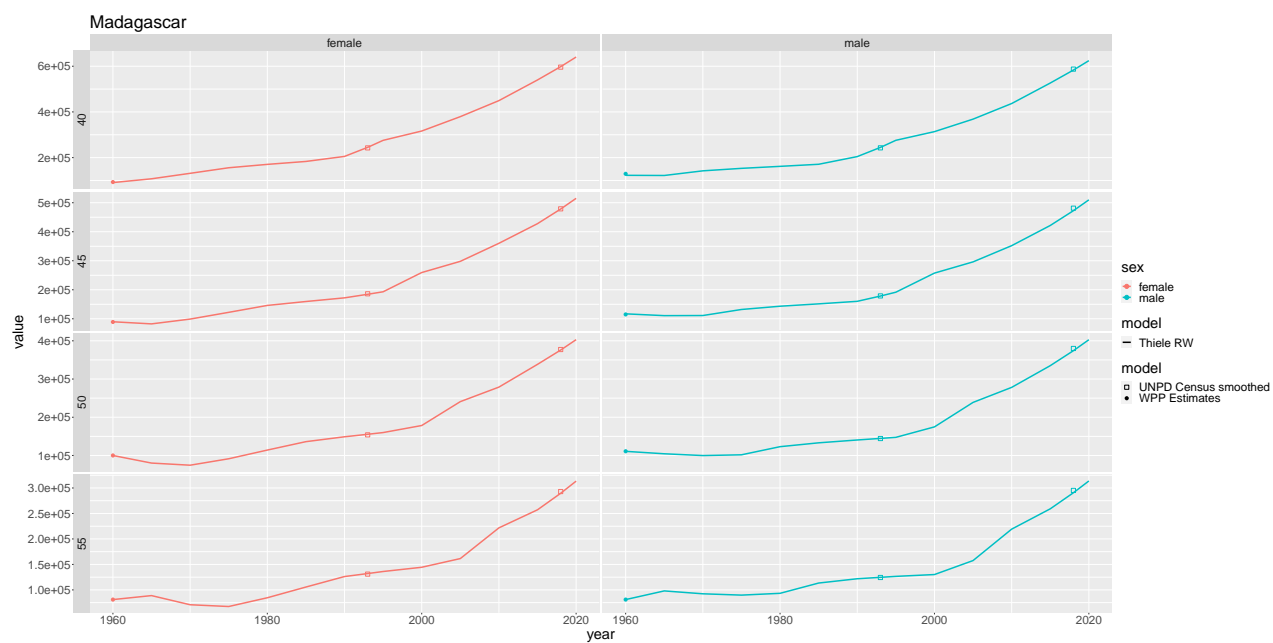
7

Figure 10: Population



Figure 11: Population
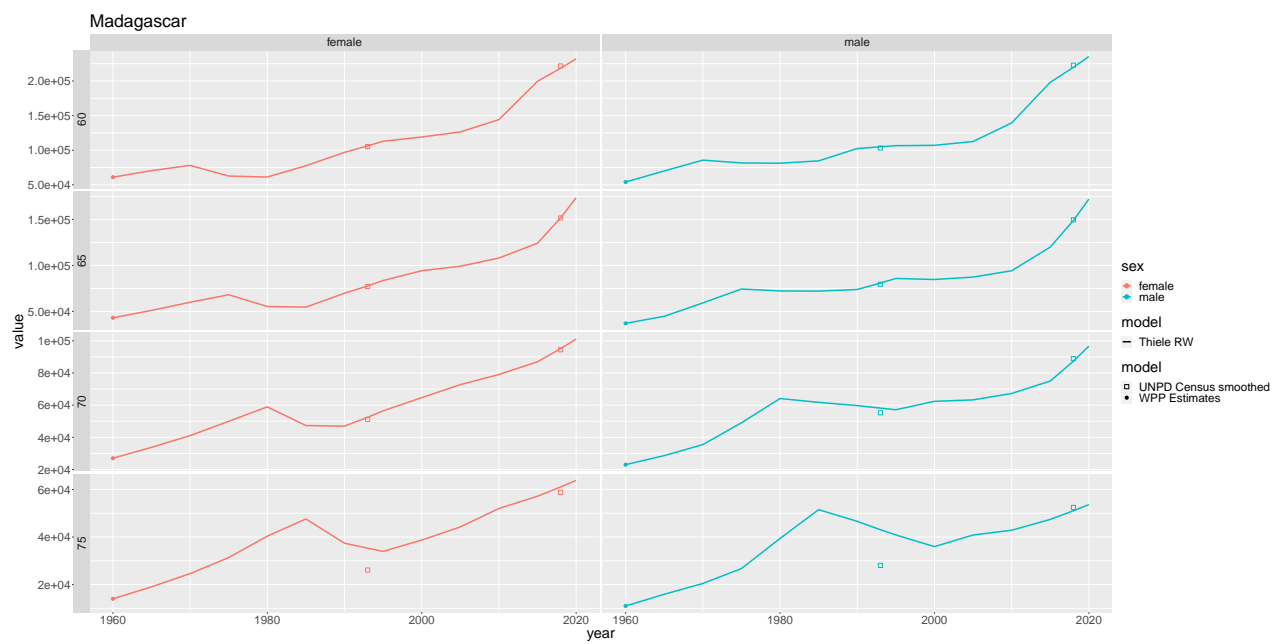
8

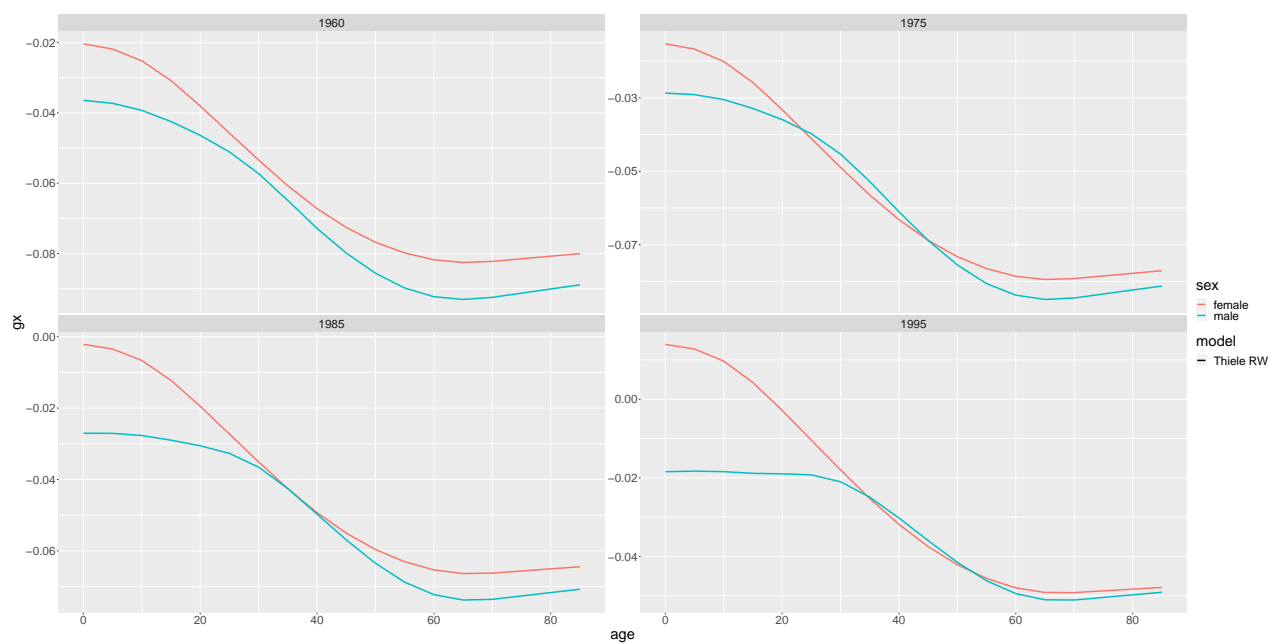Figure 12: Population
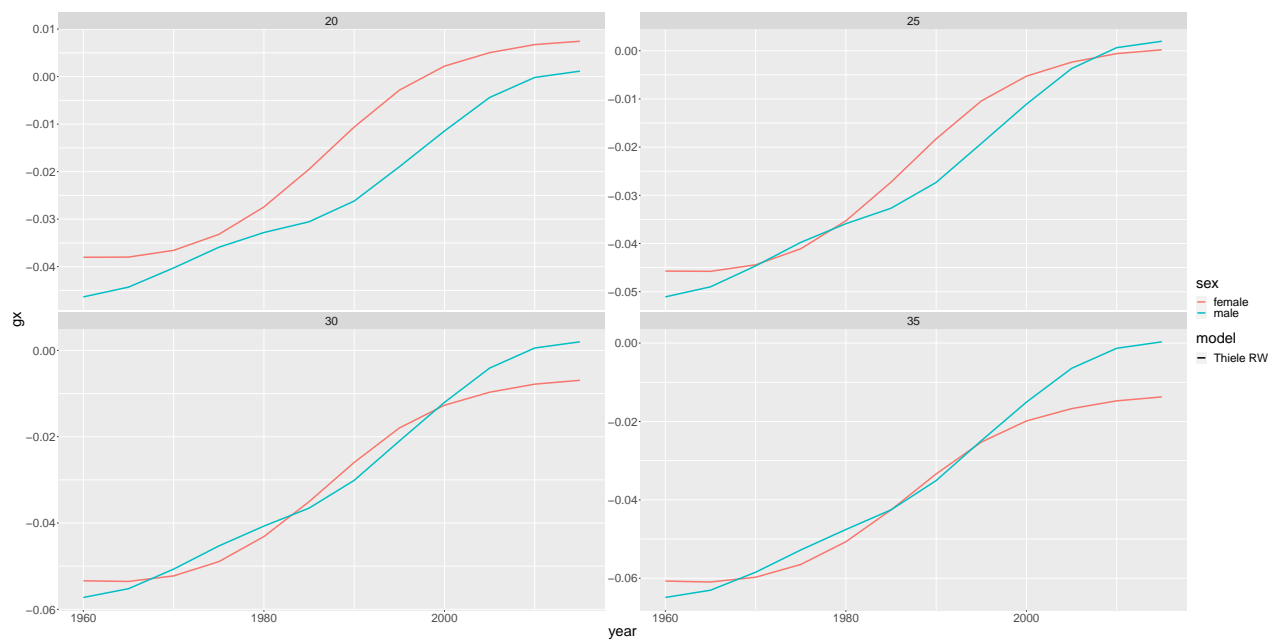


Figure 13: Population

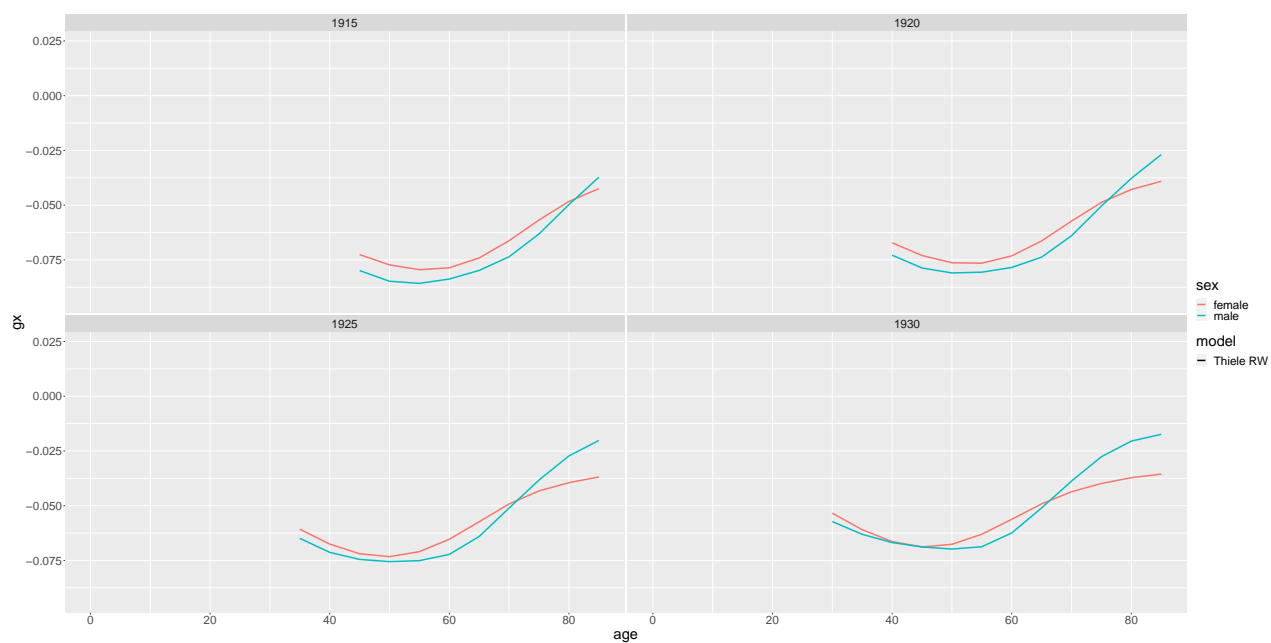Figure 14: Migration
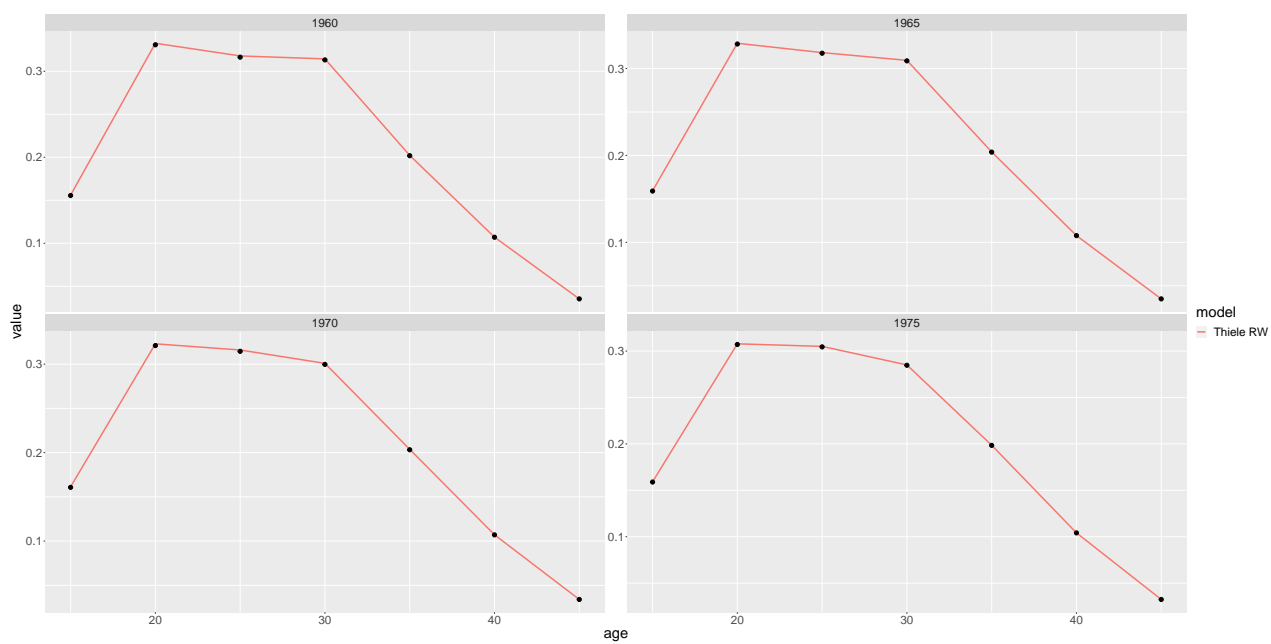


Figure 15: Migration
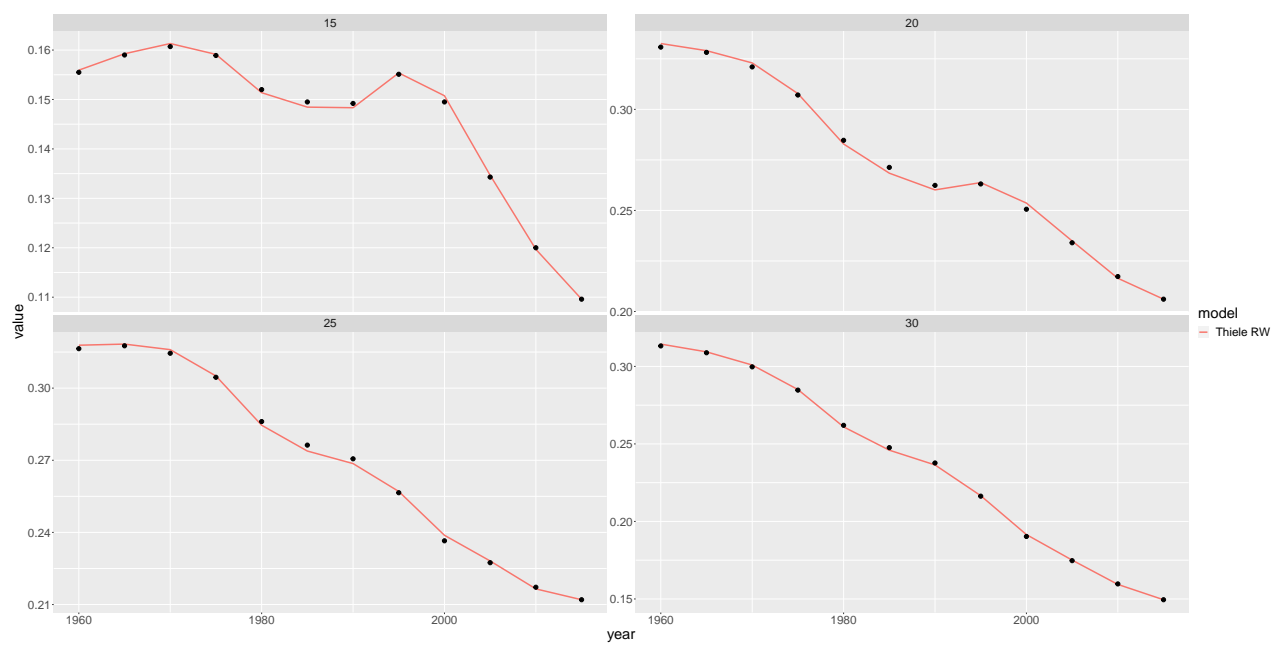
10

Figure 16: Migration



Figure 17: Fertility

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Figure 18: Fertility