Eswatini

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

## # A tibble: 86 x 6
##      age `1966` `1986` `1997` `2007` `2017`
##    <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>
## 1      0  6964. 10944. 12396. 12316. 12763.
## 2      1  6376. 11954. 13167. 12627. 12728.
## 3      2  6594. 12469. 13811. 12844. 13042.
## 4      3  6623. 12746. 14308. 13027. 13356.
## 5      4  6691. 12586. 14538. 13211. 13400.
## 6      5  6504. 12066. 14587. 13468. 13192.
## 7      6  6335. 11476. 14355. 13640. 12860.
## 8      7  6171. 10917. 14108. 13753. 12766.
## 9      8  5937. 10495. 14062. 13834. 13024.
## 10     9  5669. 10157. 14041. 13798. 13262.
## # ... with 76 more rows

## [1] "Census Females 5-year"

## # A tibble: 18 x 2
##      age `1976`
##    <dbl>  <dbl>
## 1      0 45361.
## 2      5 39820.
## 3     10 34111.
## 4     15 28627.
## 5     20 23750.
## 6     25 19219.
## 7     30 15322.
## 8     35 12596.
## 9     40 10397.
## 10    45  8481.
## 11    50  6721.
## 12    55  5267.
## 13    60  4240.
## 14    65  3274.
## 15    70  2533.
## 16    75  1893.
## 17    80   837.
## 18    85  1220.

## [1] "Census Males"

## # A tibble: 86 x 6
##      age `1966` `1986` `1997` `2007` `2017`
##    <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>
## 1      0  6533. 10210. 12086. 12070. 12844.
## 2      1  5960. 11677. 12928. 12632. 12882.
## 3      2  6212. 12210. 13587. 12816. 13180.
## 4      3  6308. 12538. 14091. 12950. 13354.
## 5      4  6431. 12355. 14314. 13108. 13401.
## 6      5  6322. 11824. 14355. 13415. 13389.
```

```
## 7      6  6210. 11230. 14185. 13620. 13195.
## 8      7  6052. 10654. 13865. 13717. 12997.
## 9      8  5831. 10254. 13759. 13728. 12957.
## 10     9  5561.  9968. 13699. 13563. 13046.
## # ... with 76 more rows
```

```
## [1] "Census Males 5-year"
```

```
## # A tibble: 18 x 2
##      age `1976`
##    <dbl>  <dbl>
## 1      0 43333.
## 2      5 38898.
## 3     10 32377.
## 4     15 23942.
## 5     20 17032.
## 6     25 13565.
## 7     30 12073.
## 8     35 10997.
## 9     40  9633.
## 10    45  8067.
## 11    50  6290.
## 12    55  4896.
## 13    60  3941.
## 14    65  2892.
## 15    70  2128.
## 16    75  1467.
## 17    80   379.
## 18    85   554.
```

Thiele log-Normal Hump Spline

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

```
##        log_tau2_logpop      log_tau2_logpop      log_tau2_logpop      log_tau2_logpop           log
##            -0.865037246          6.058929953         -0.040780477          6.168045712            
##        log_dispersion       log_dispersion       log_lambda_tp            tp_slope              
##            1.872029648          1.509794506          3.132137367         -0.009653278            
##        log_lambda_phi       log_lambda_psi         log_lambda_A         log_lambda_B       log_la
##           11.312693959         11.312691093         11.131667127         11.583372343            
##     log_lambda_epsilon
##            5.440109404
```
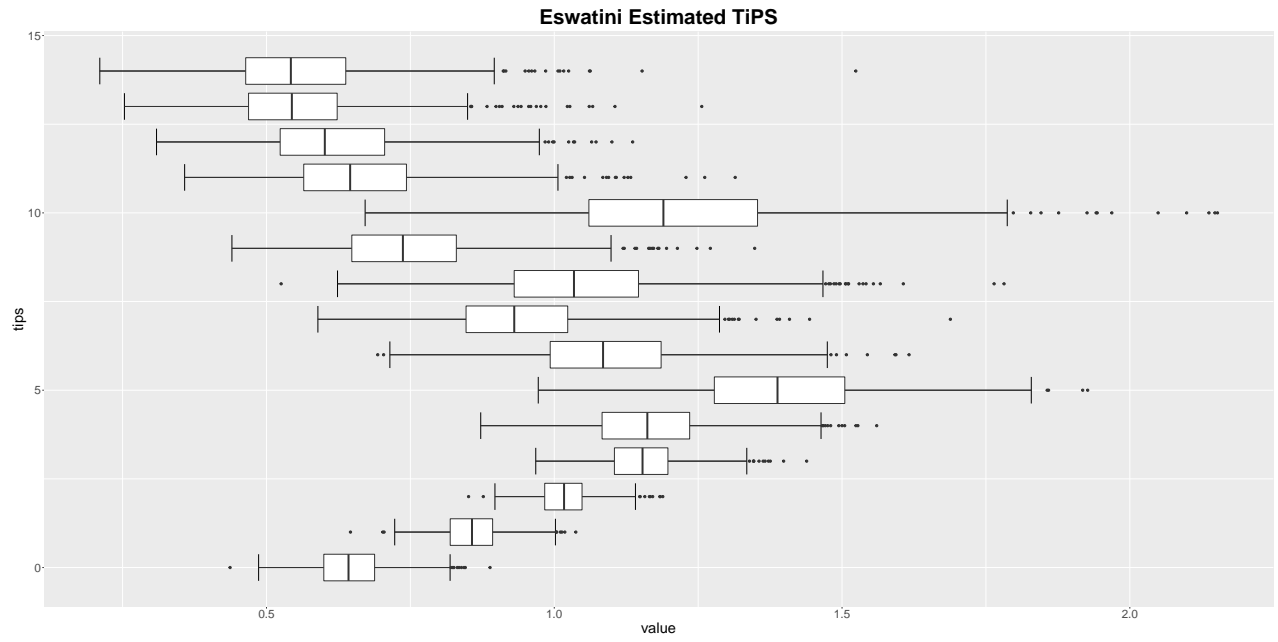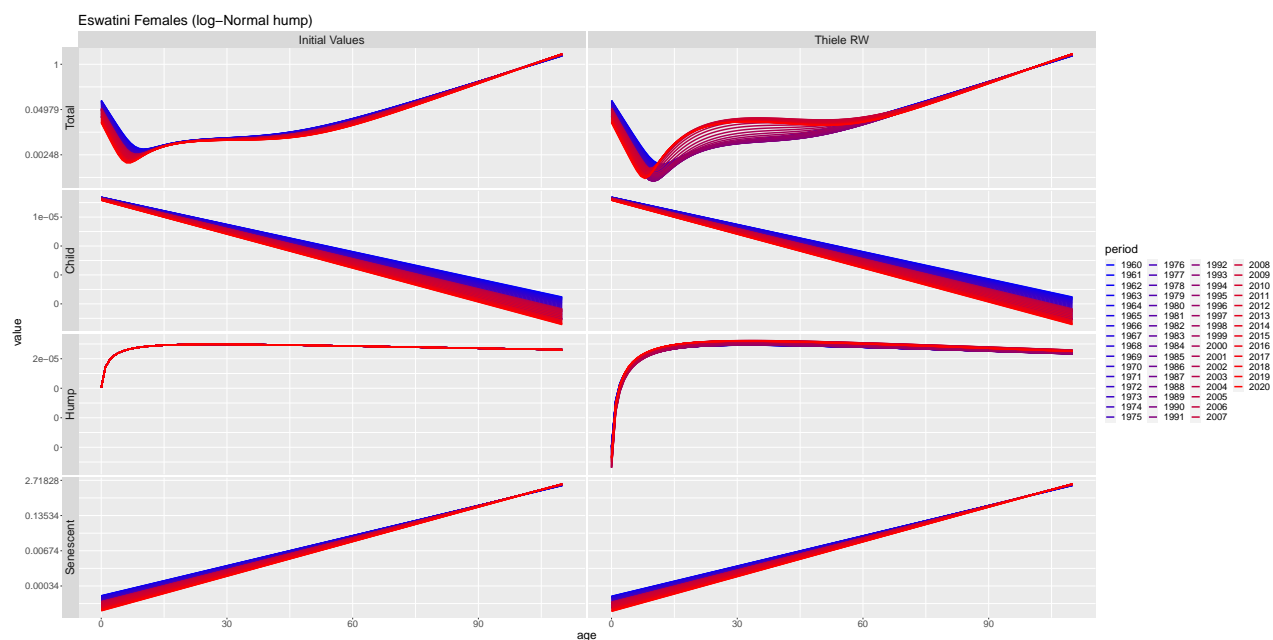
Figure 1: Estimated TiPS
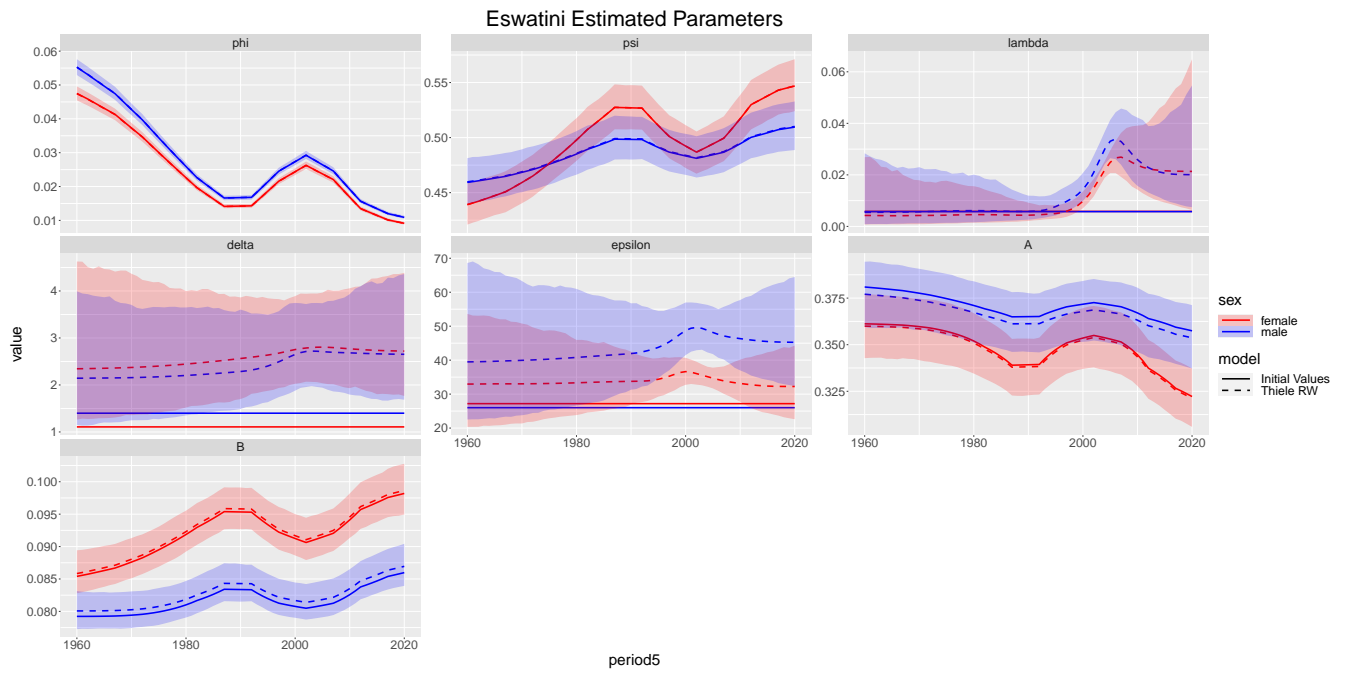
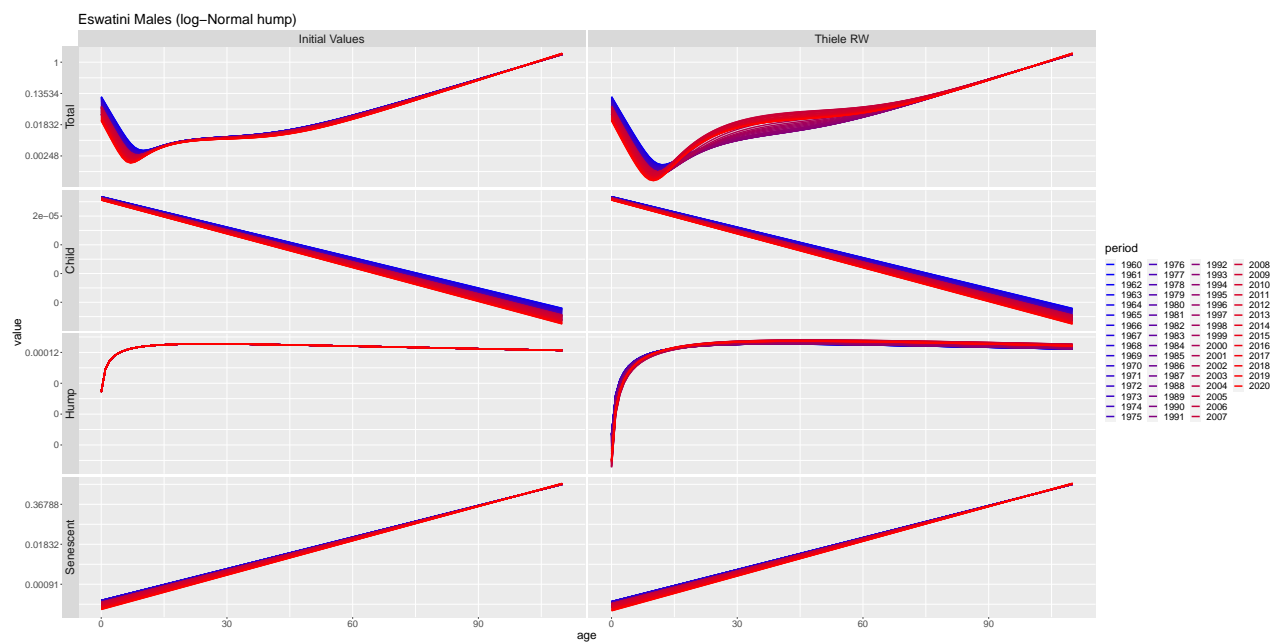Figure 2: Estimated parameters

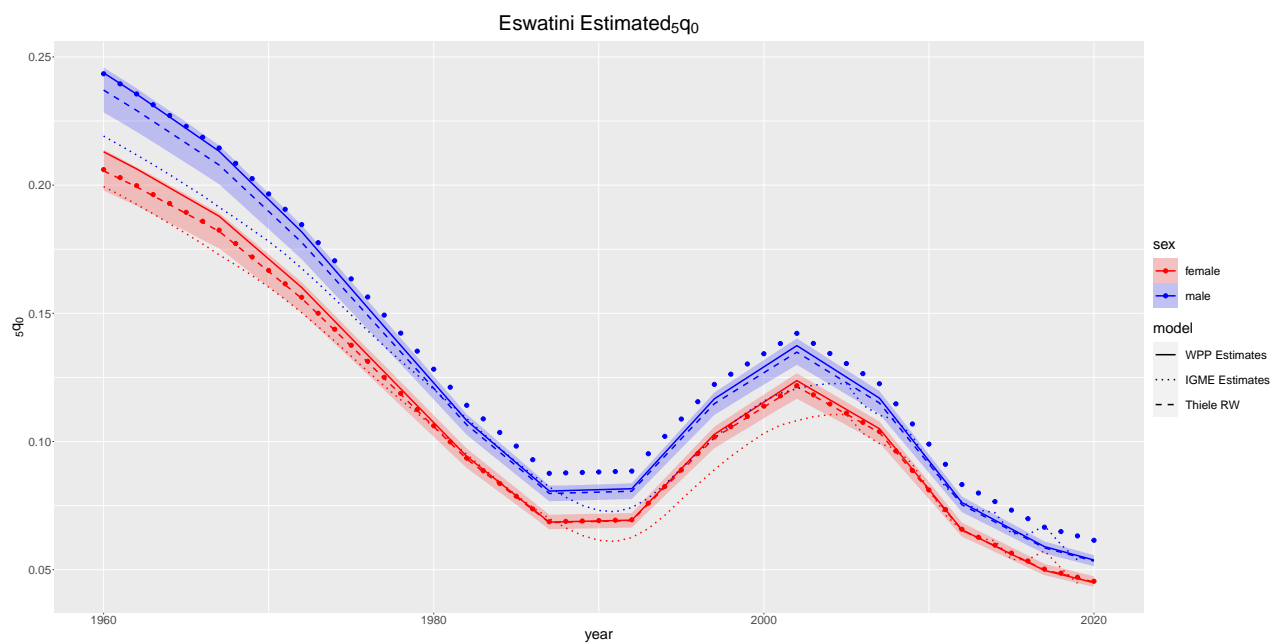Figure 3: Thiele Decomposed

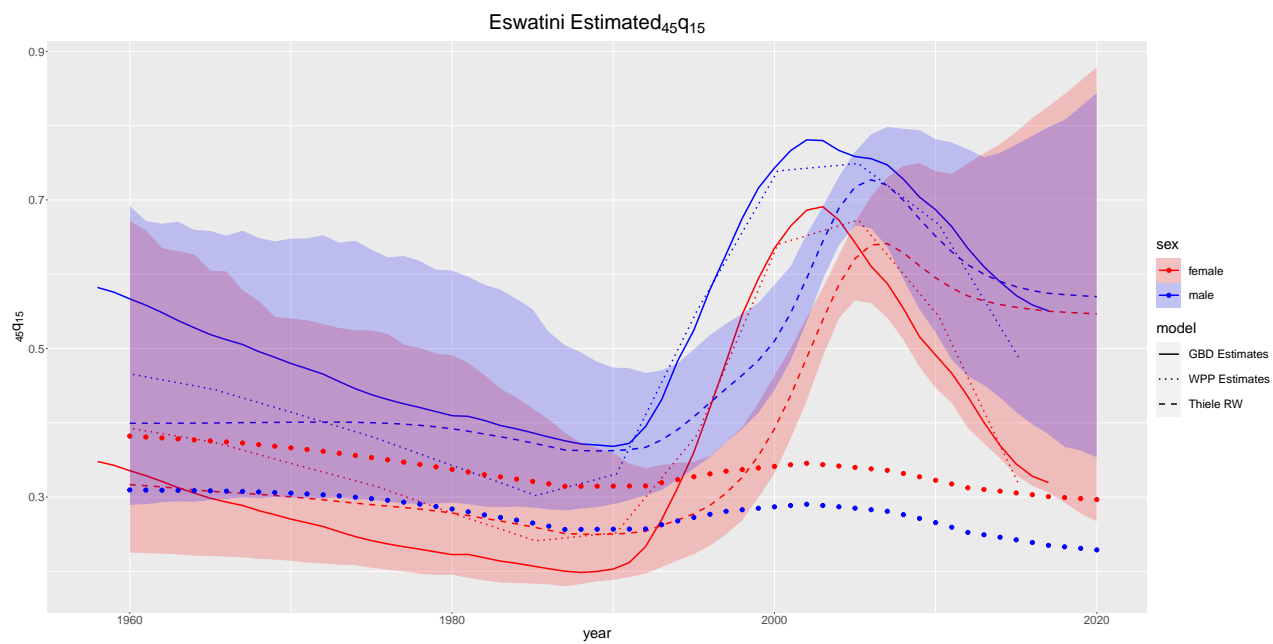Figure 4: Thiele Decomposed

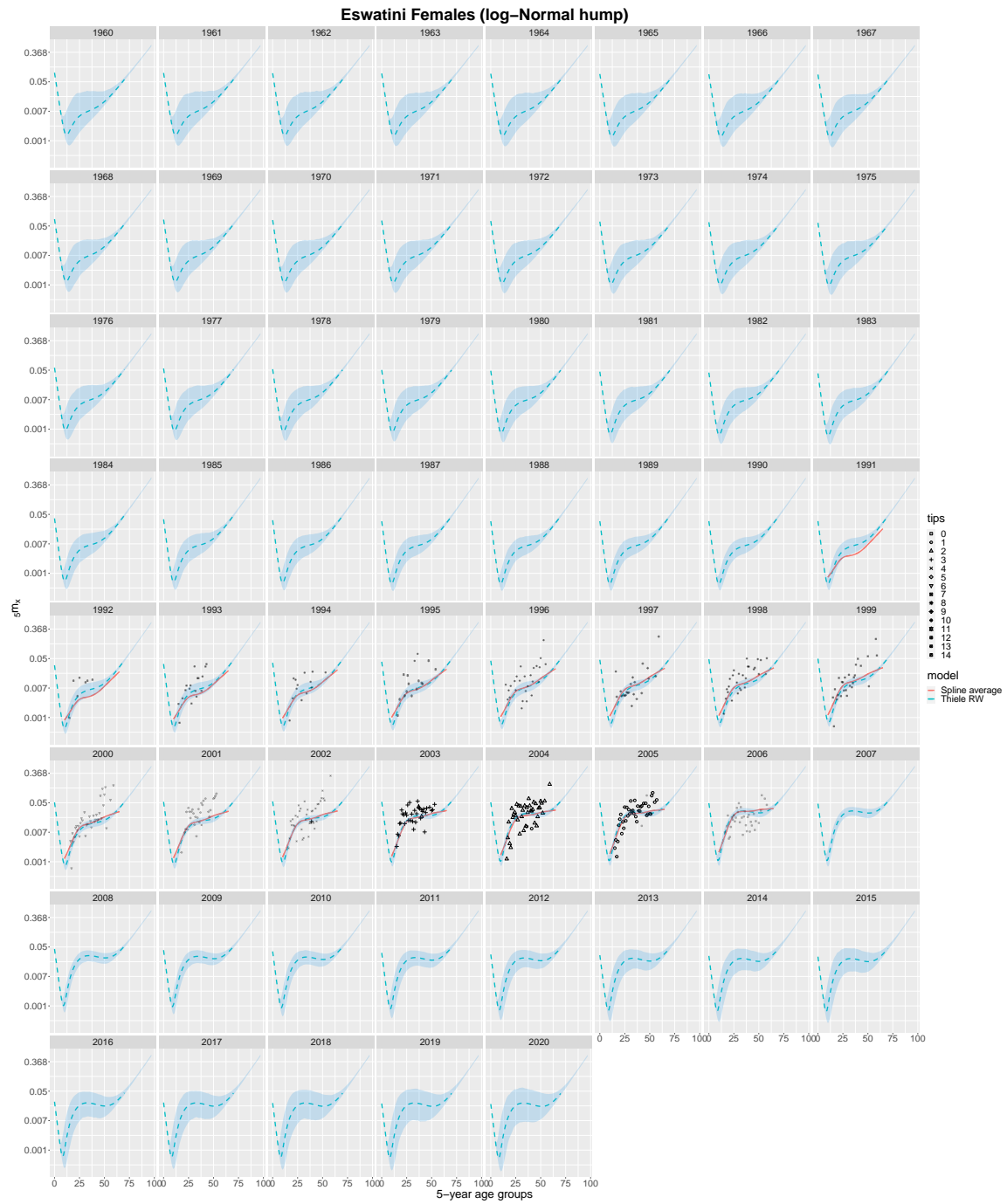Figure 5: Estimated $_5q_0$

Figure 6: Estimated $_{45}q_{15}$

Figure 7: Mortality Schedules
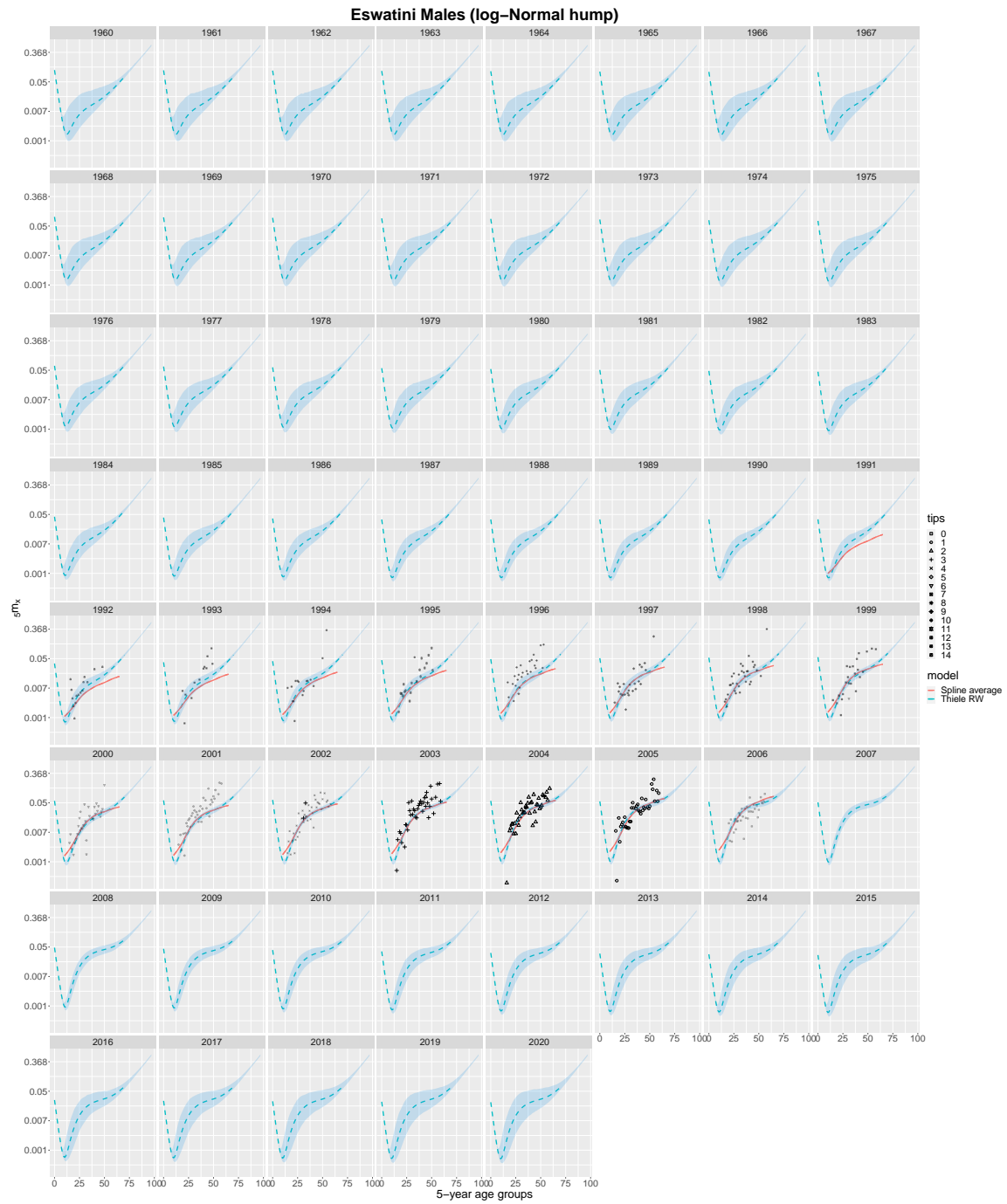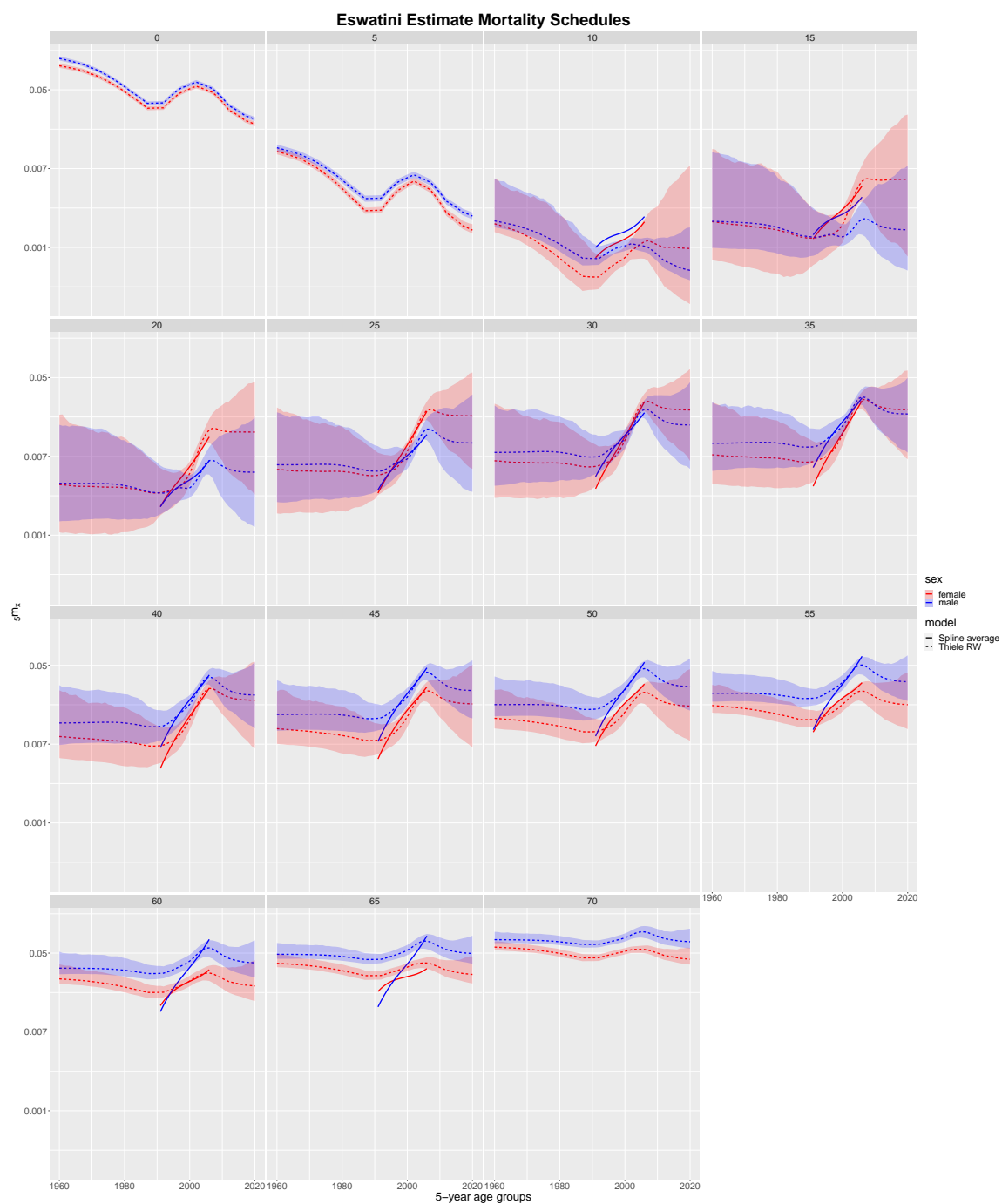
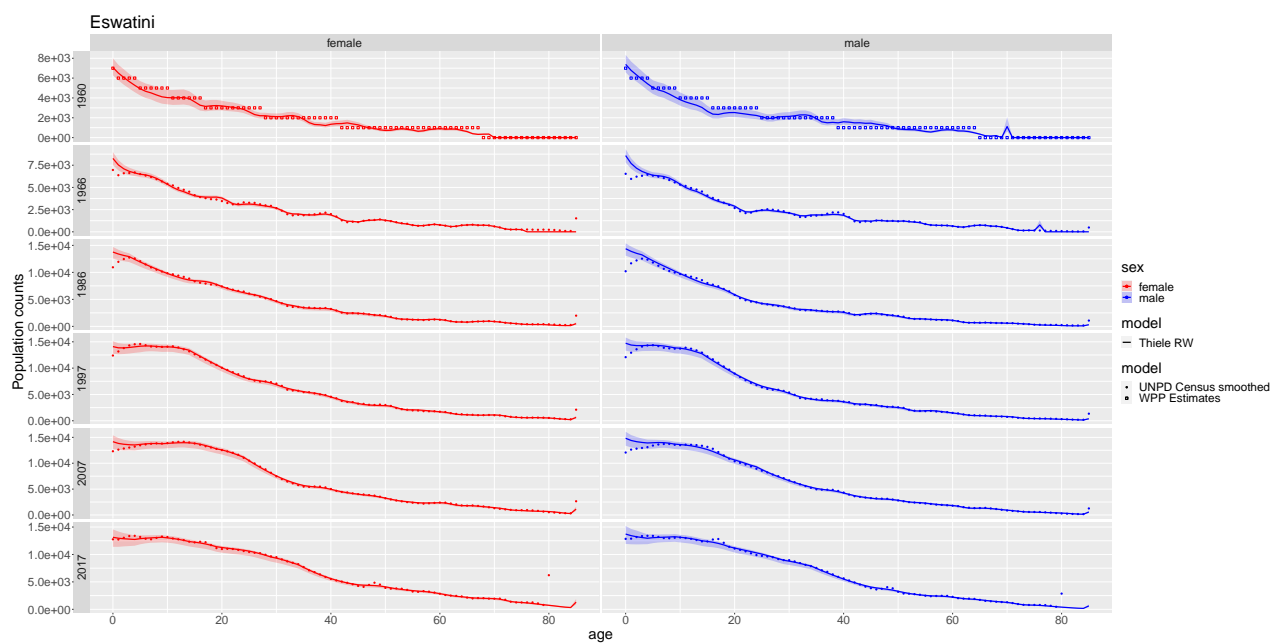Figure 8: Mortality Schedules

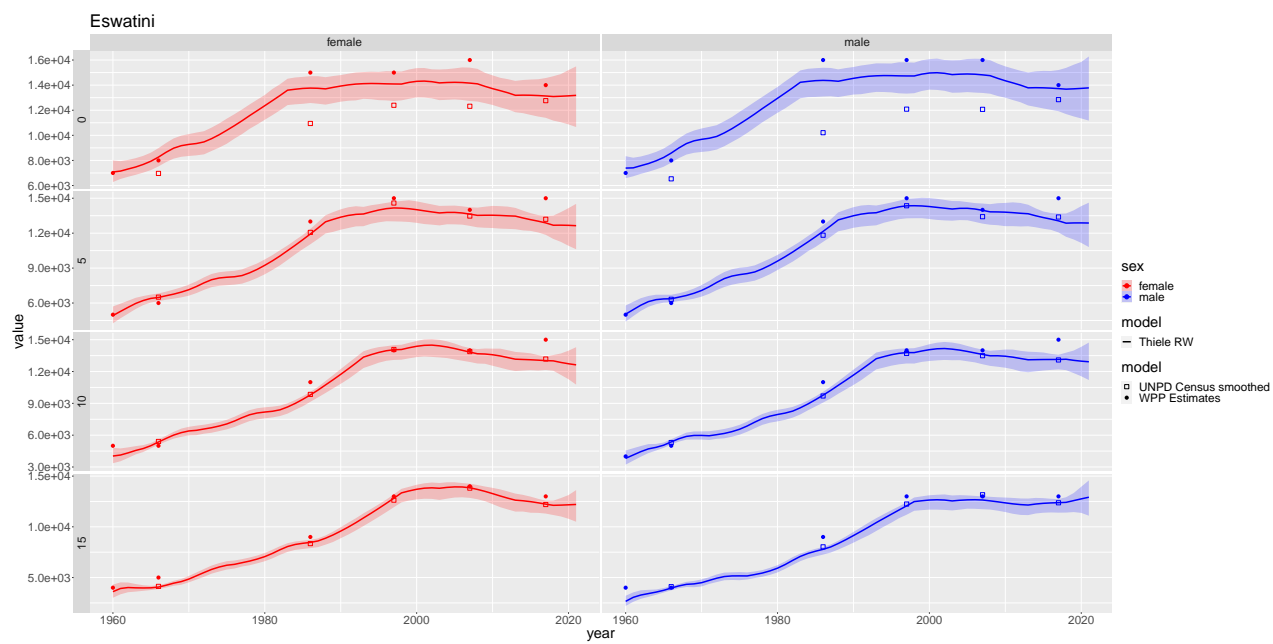Figure 9: Mortality Schedules

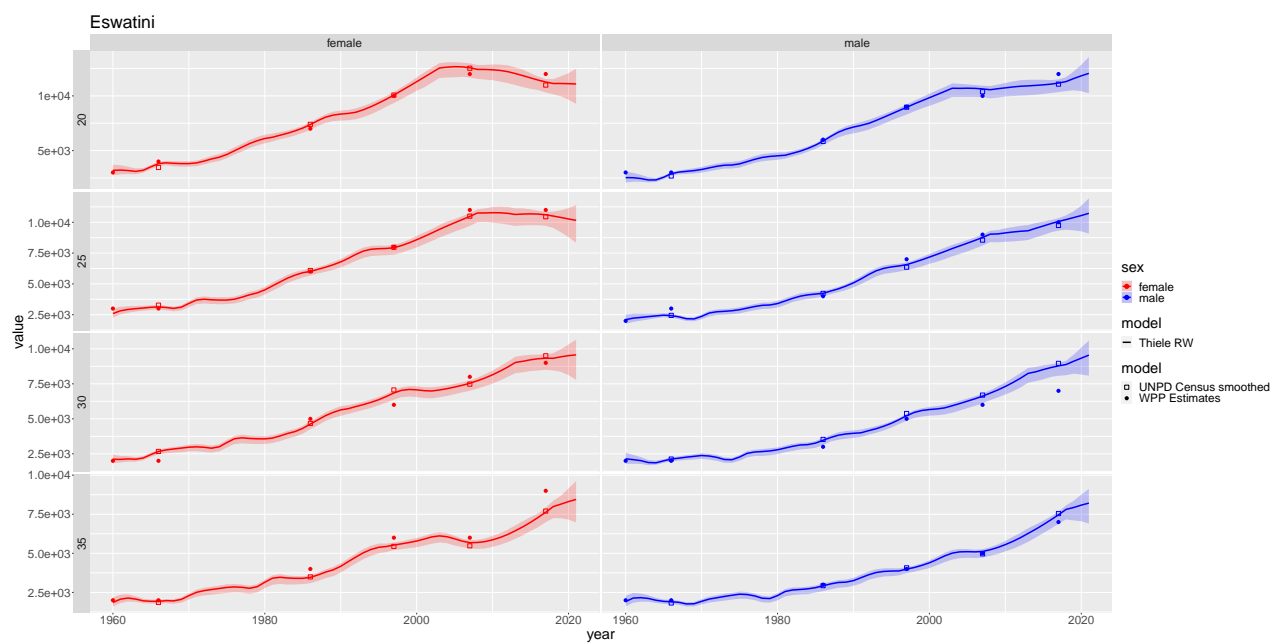Figure 10: Population
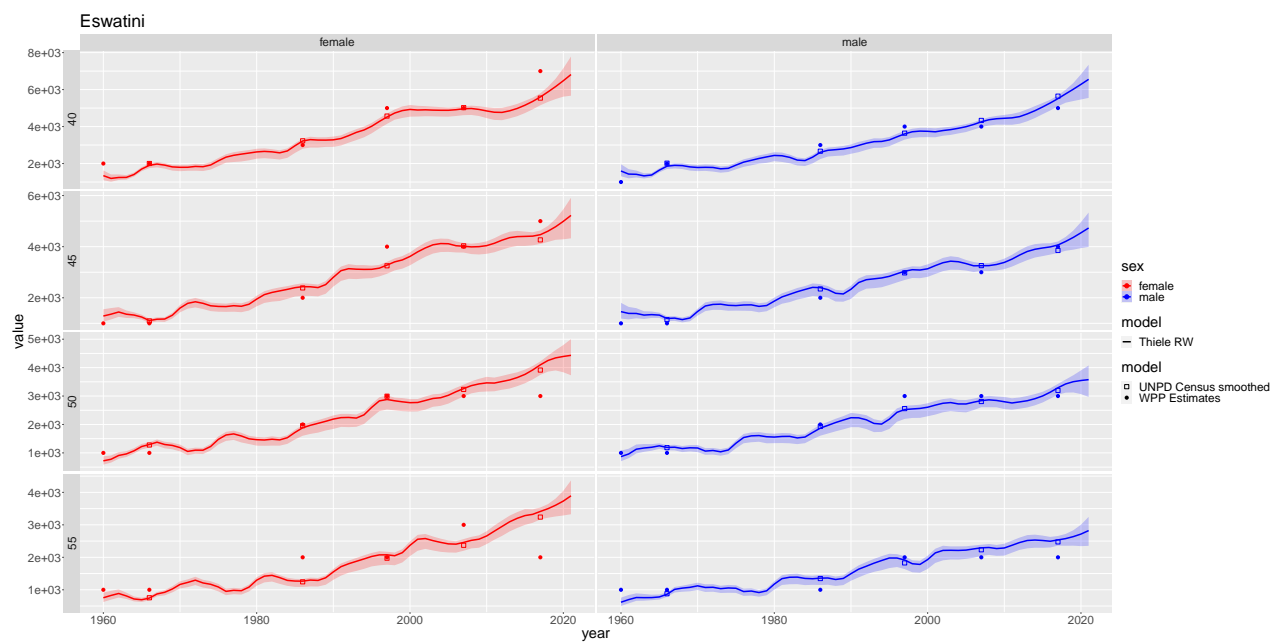

Figure 11: Population

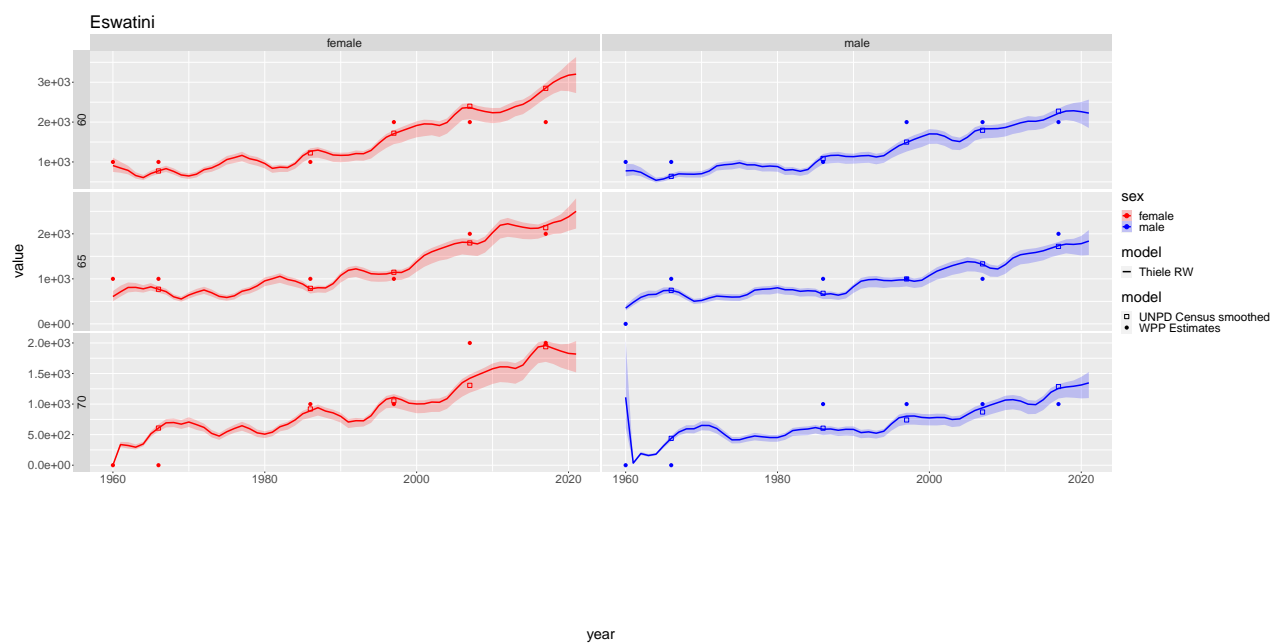Figure 12: Population

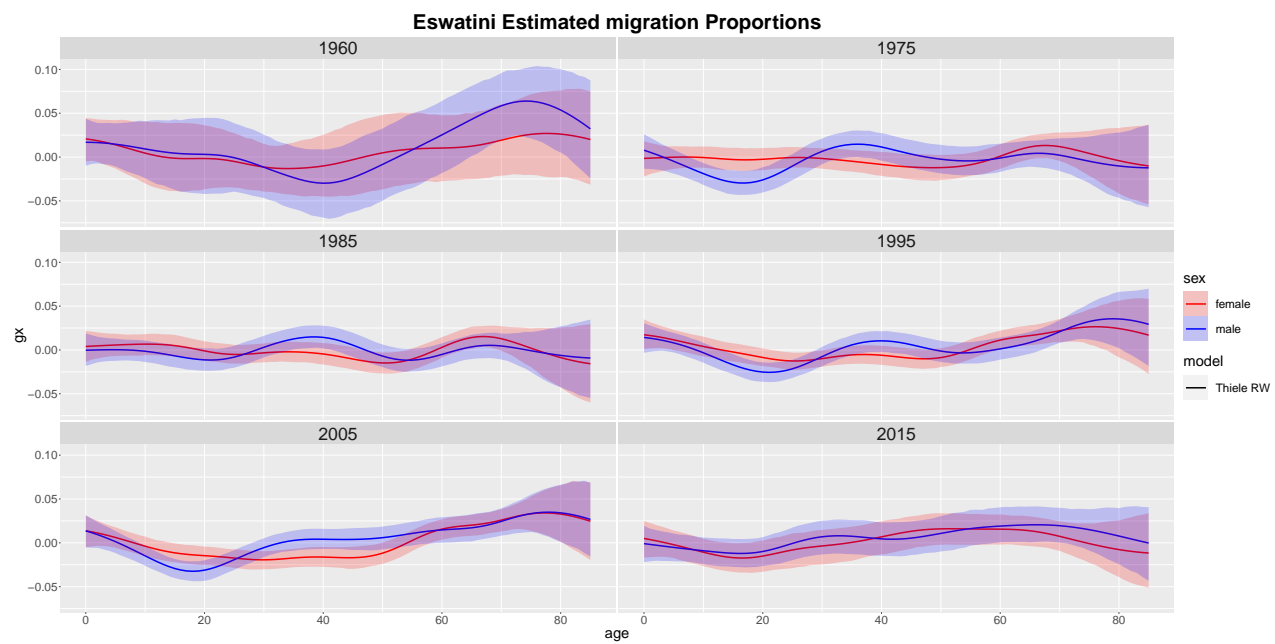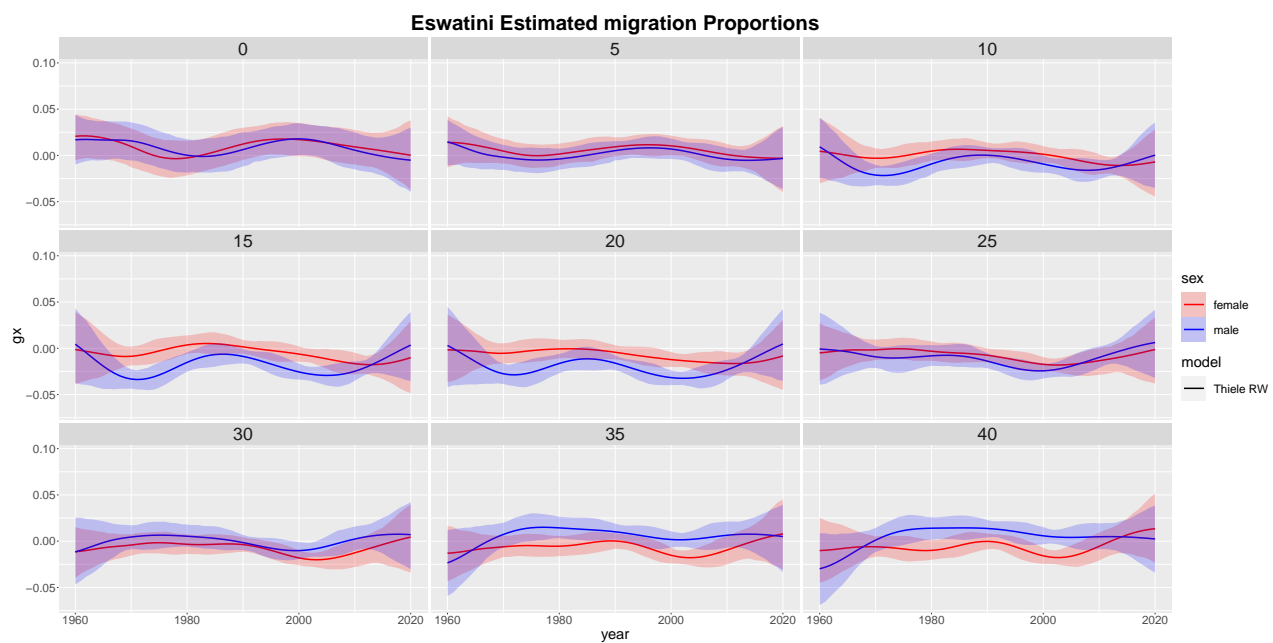Figure 13: Population

Figure 14: Population
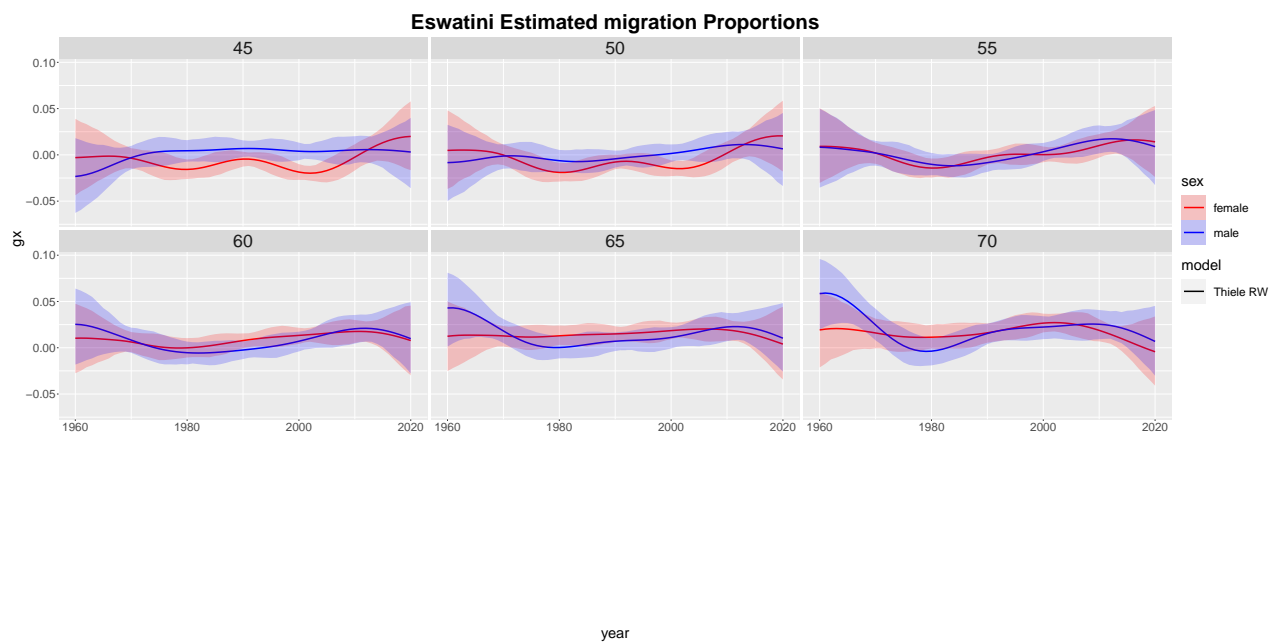

Figure 15: Migration

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Figure 16: Migration
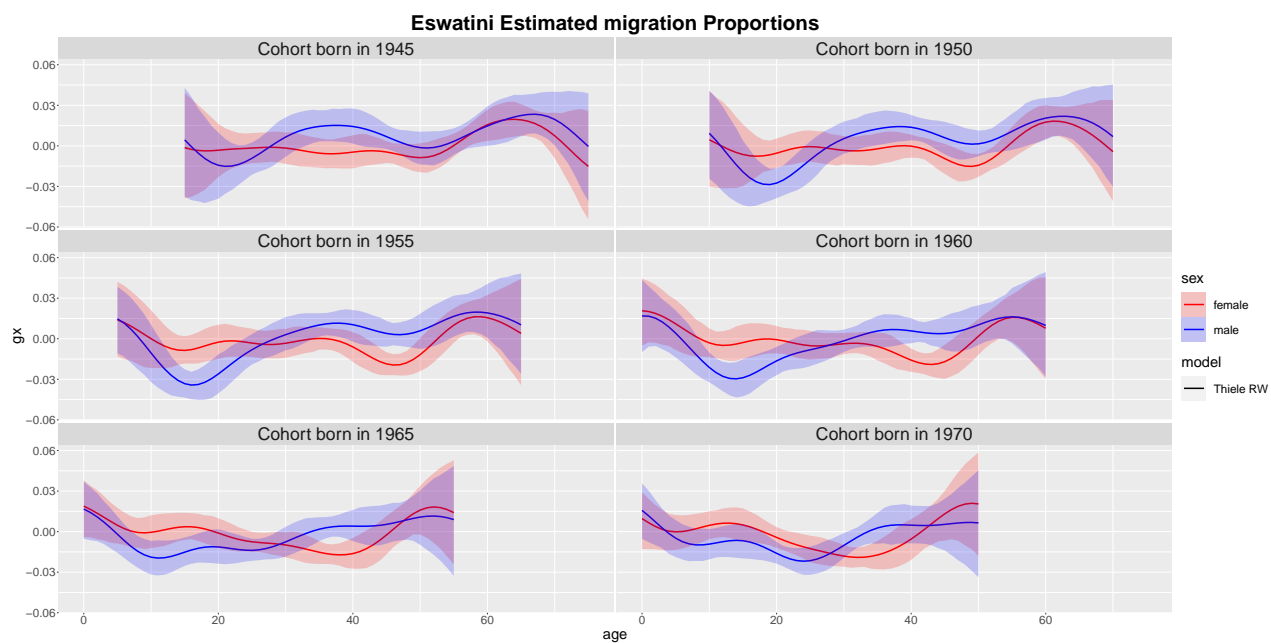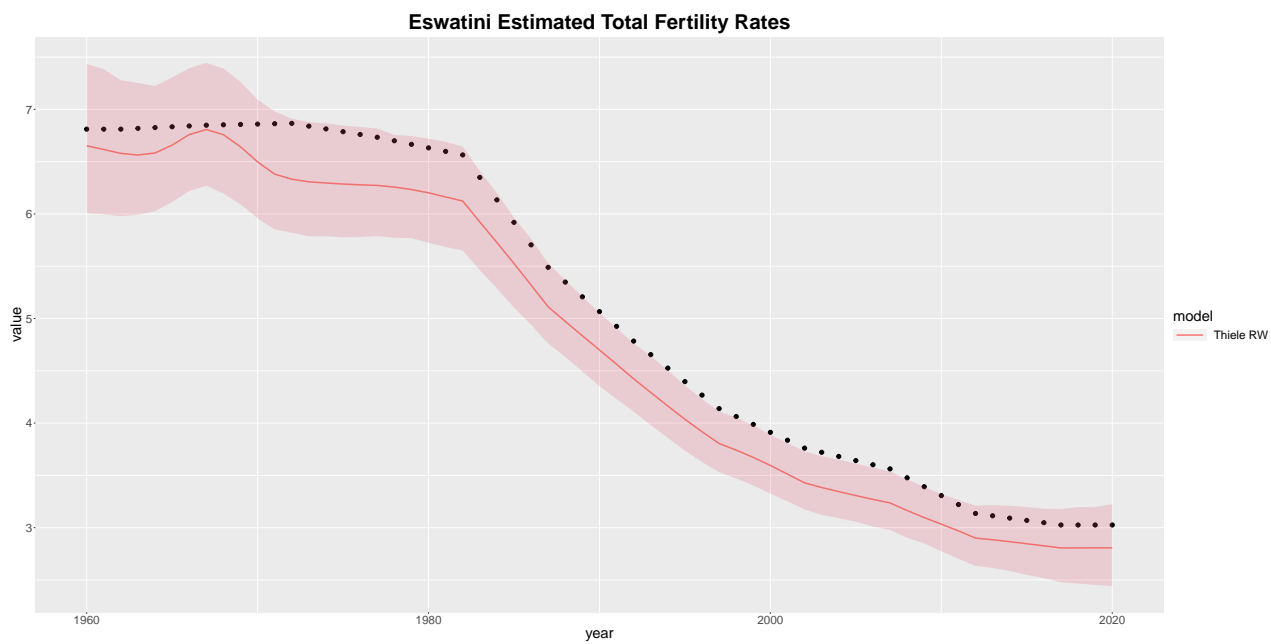

Figure 17: Migration

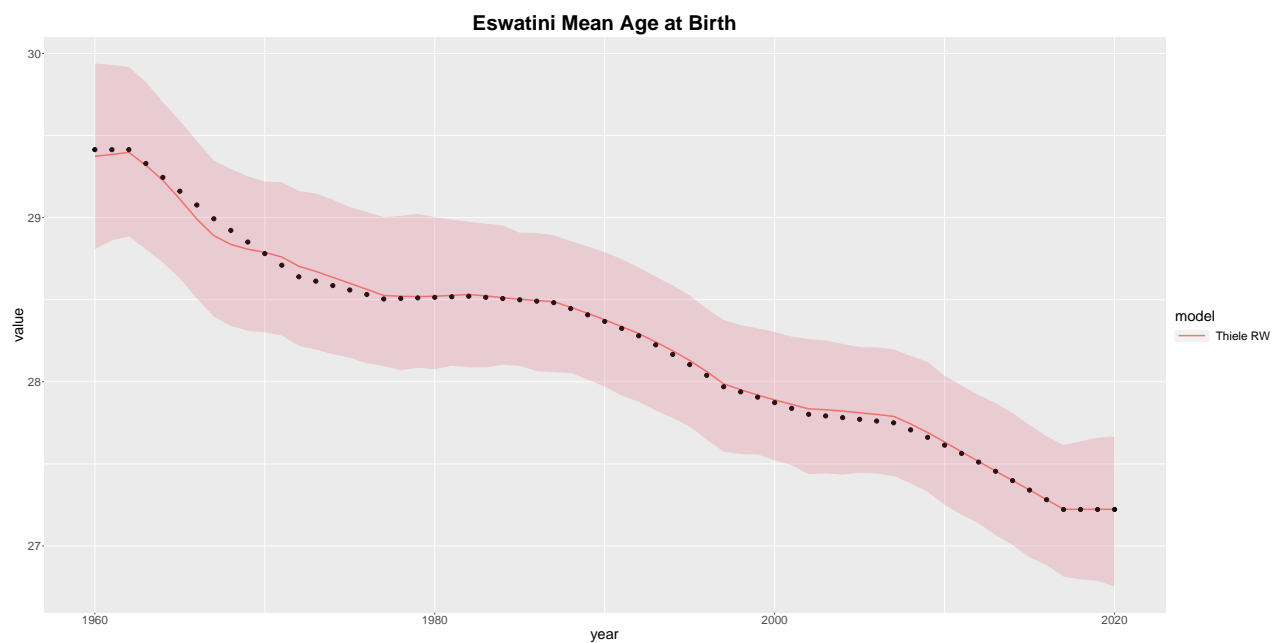Figure 18: Migration
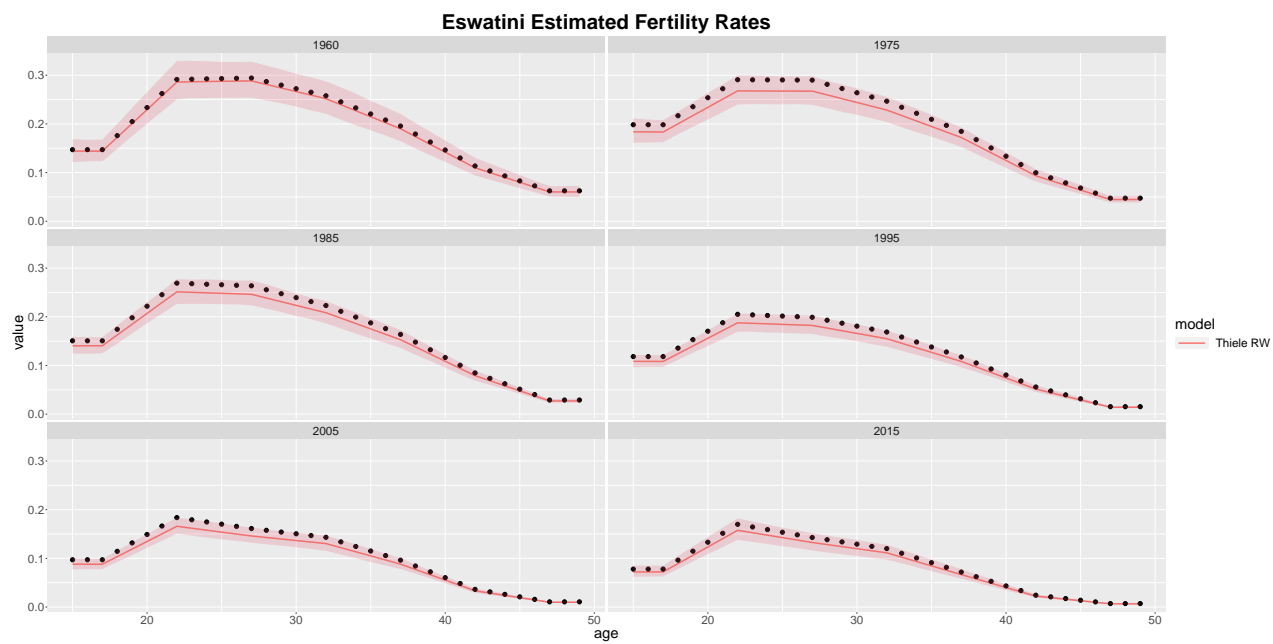

Figure 19: Total Fertility

Figure 20: Mean age at births
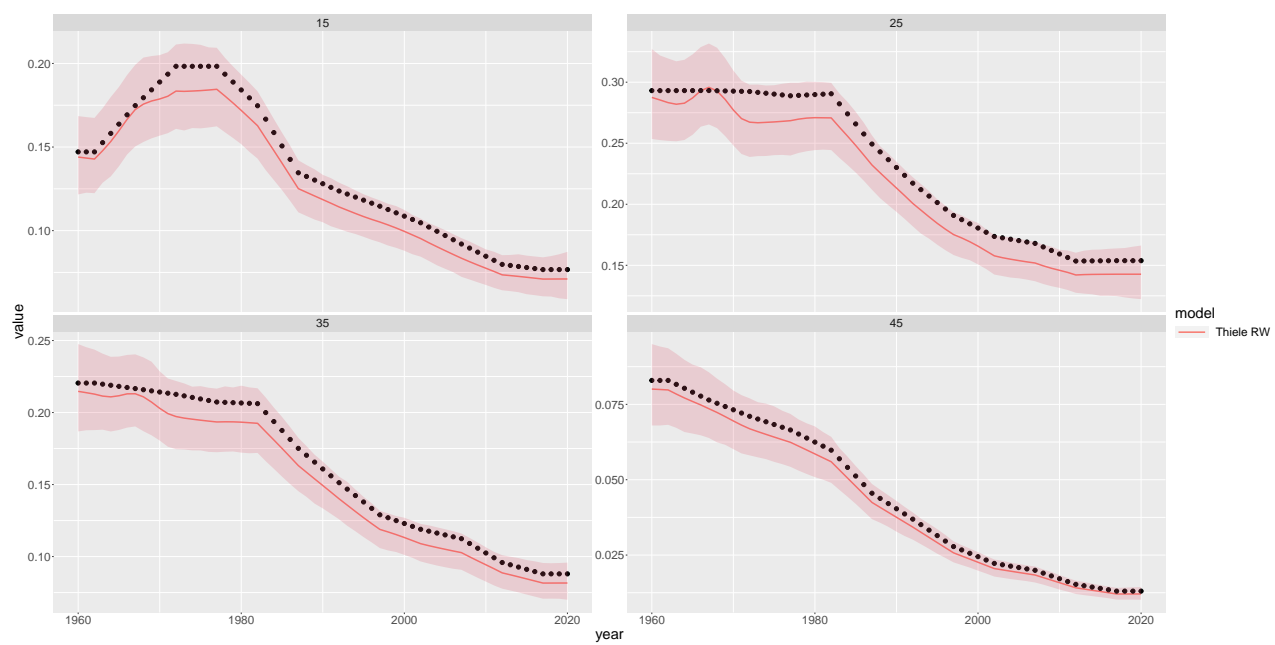

Figure 21: Fertility

Figure 22: Fertility