

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_lambda_fx | log |
| ## | -0.70079585 | 6.30503342 | -0.04030321 | 6.35805169 | 5.90098803 | 8 |
| ## | log_lambda_tp | tp_slope | tp_params_5 | tp_params_10 | log_lambda_phi | log |
| ## | 3.11086770 | -0.06496026 | 0.16544618 | 0.43553165 | 11.31374115 | 1 |
| ## | log_lambda_lambda | log_lambda_delta | log_lambda_epsilon | | | |
| ## | 4.06324526 | 5.83309881 | 5.26508434 | | | |

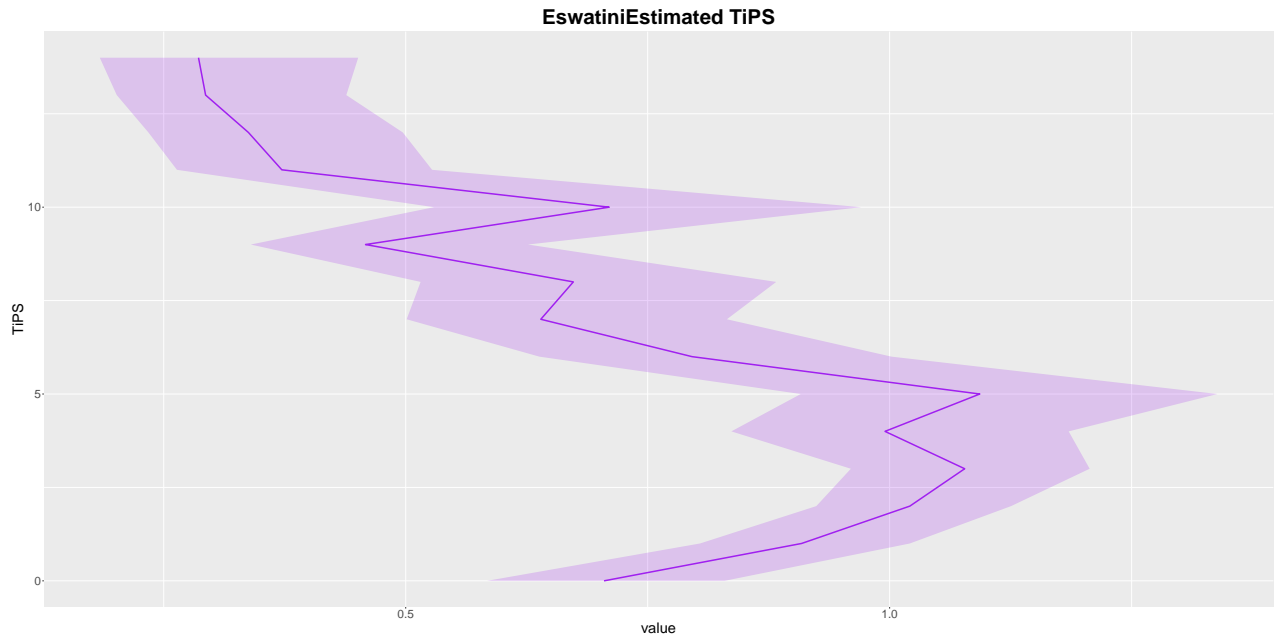


Figure 1: Estimated TiPS

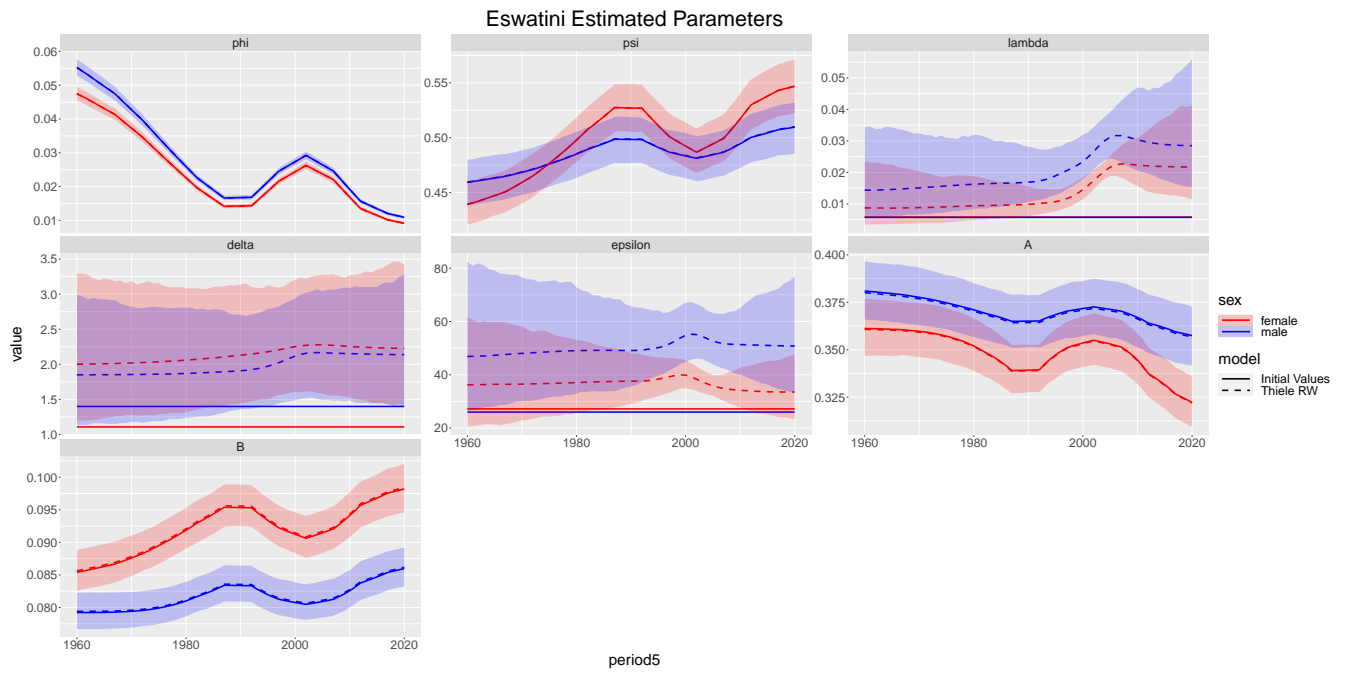


Figure 2: Estimated parameters

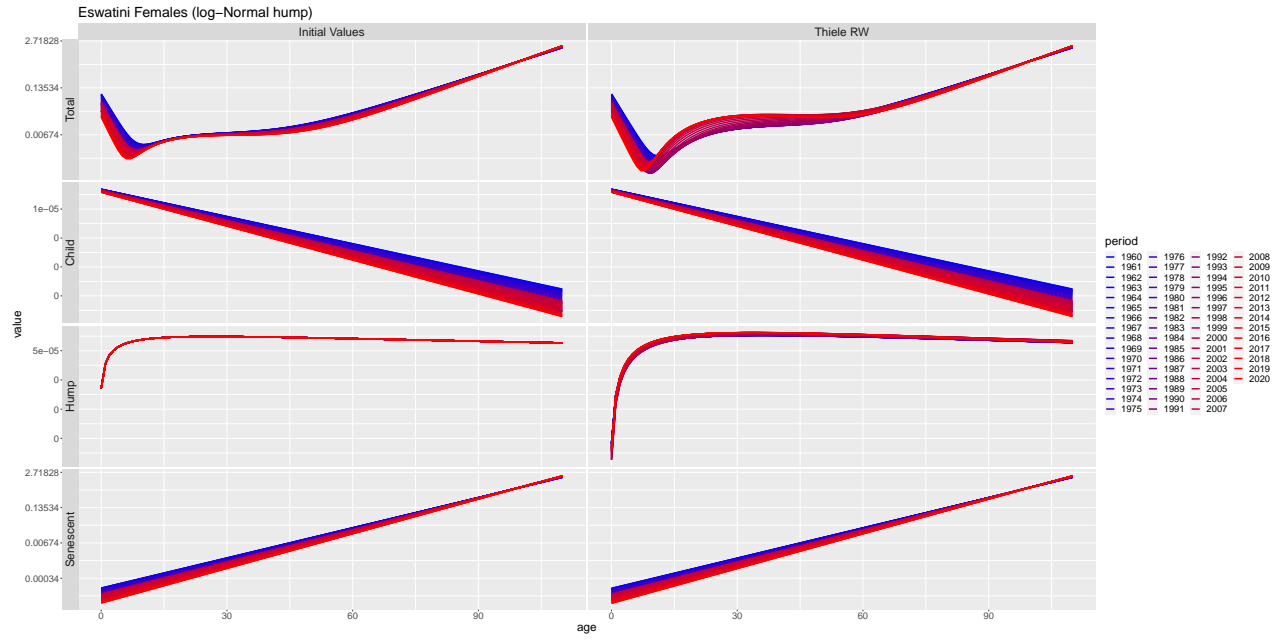


Figure 3: Thiele Decomposed

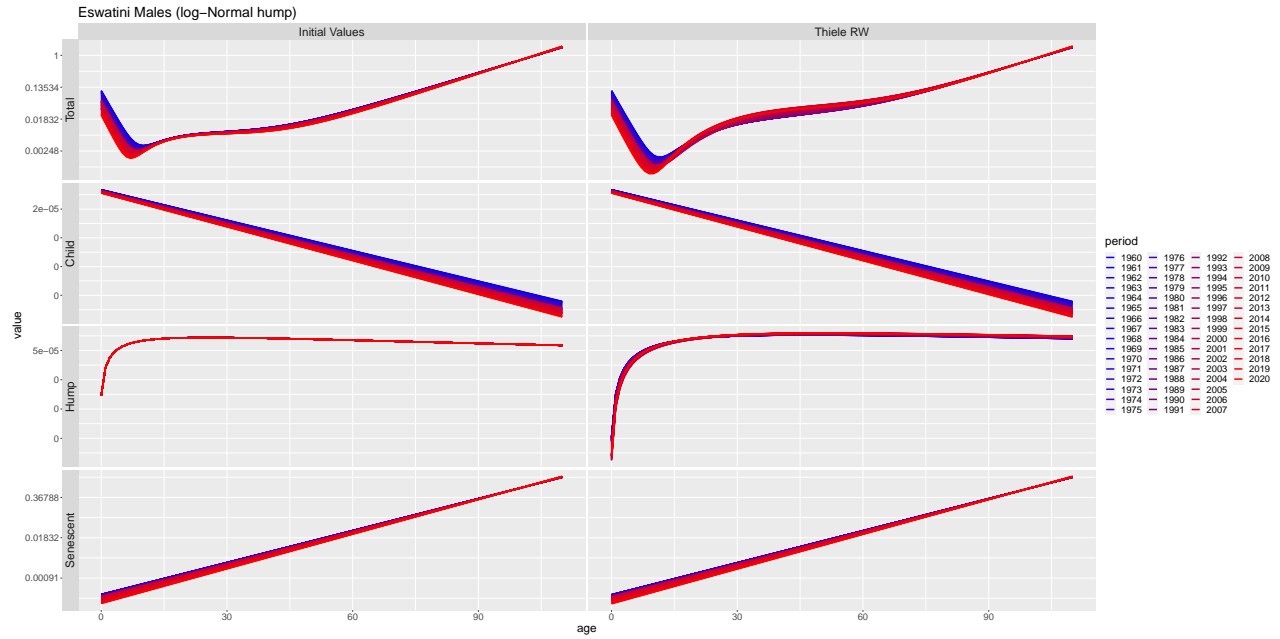


Figure 4: Thiele Decomposed

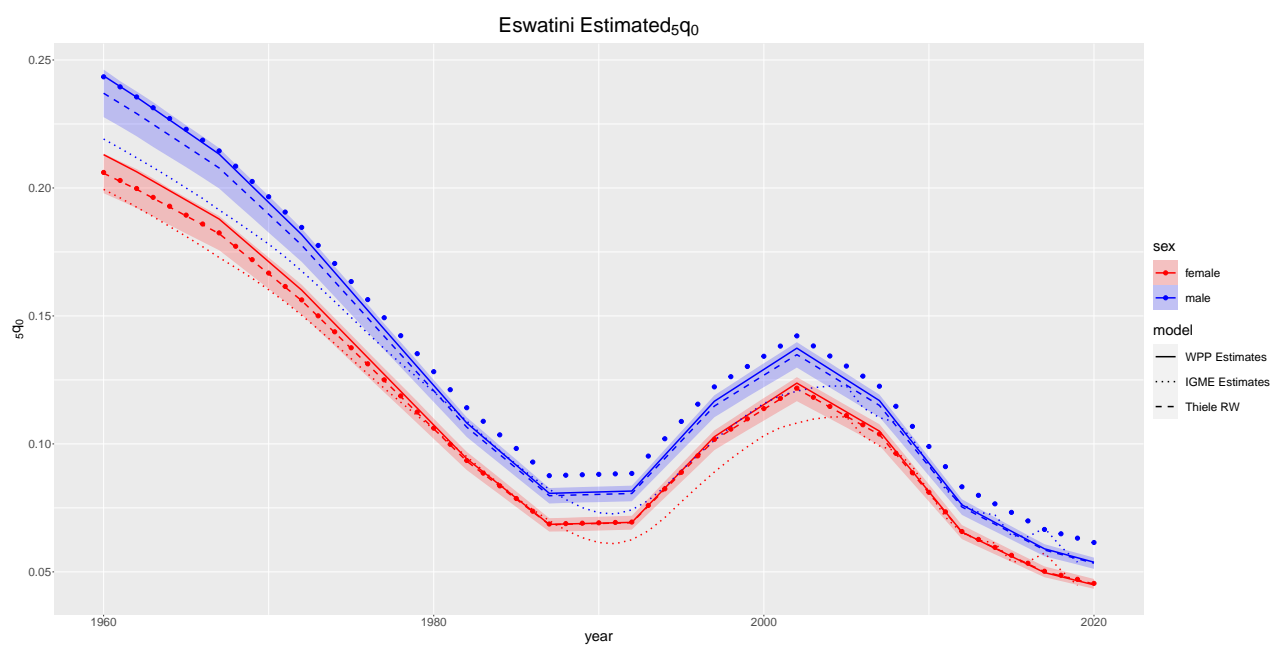


Figure 5: Estimated ${}_5q_0$

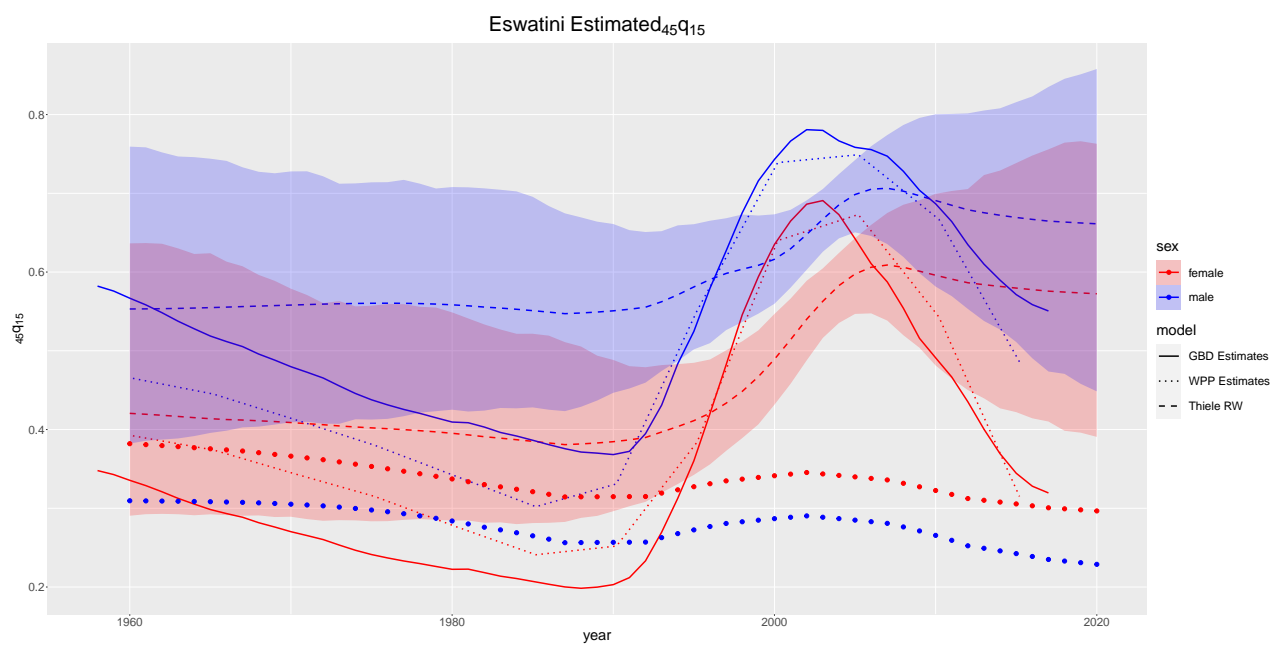


Figure 6: Estimated ${}_{45}q_{15}$

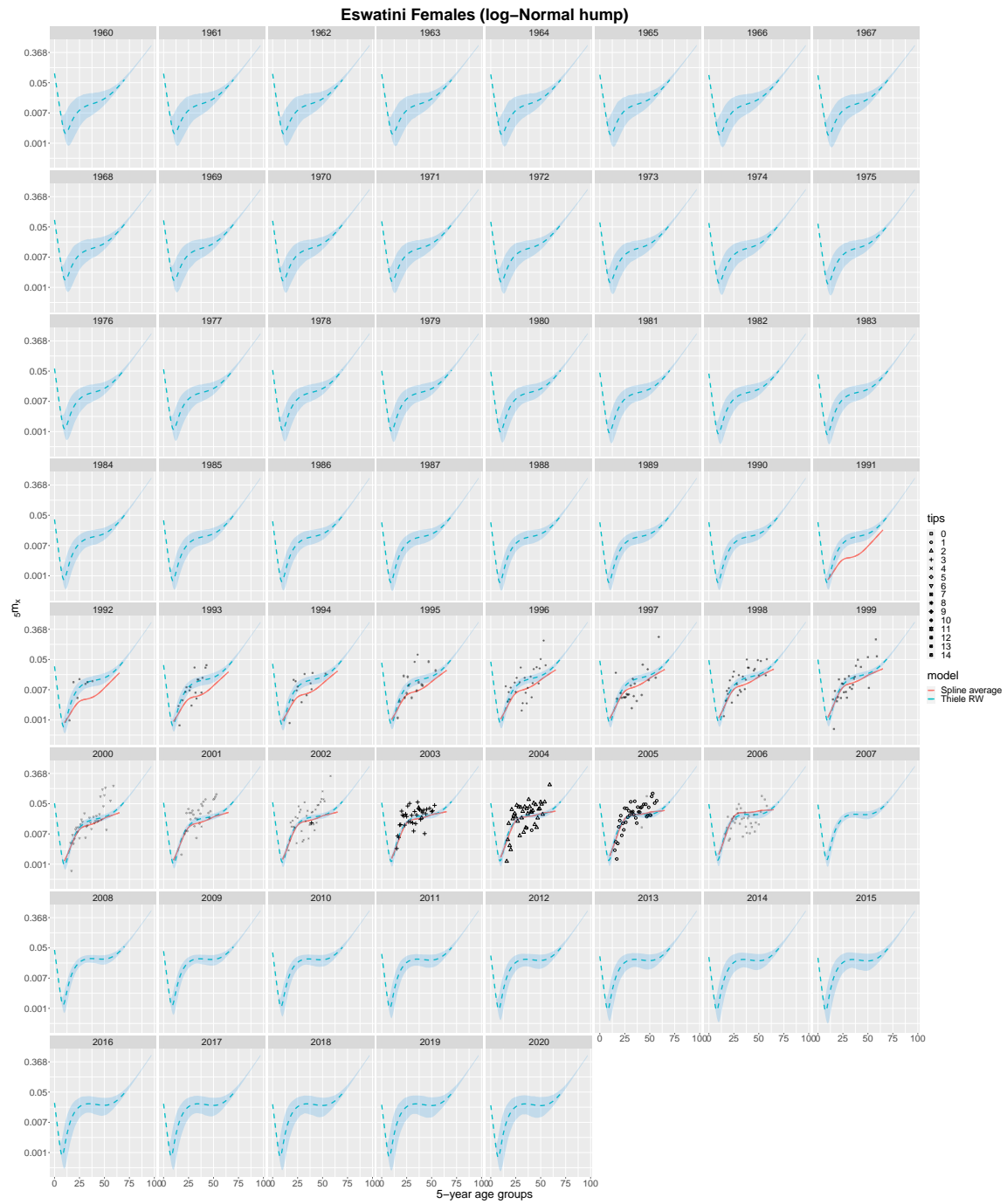


Figure 7: Mortality Schedules

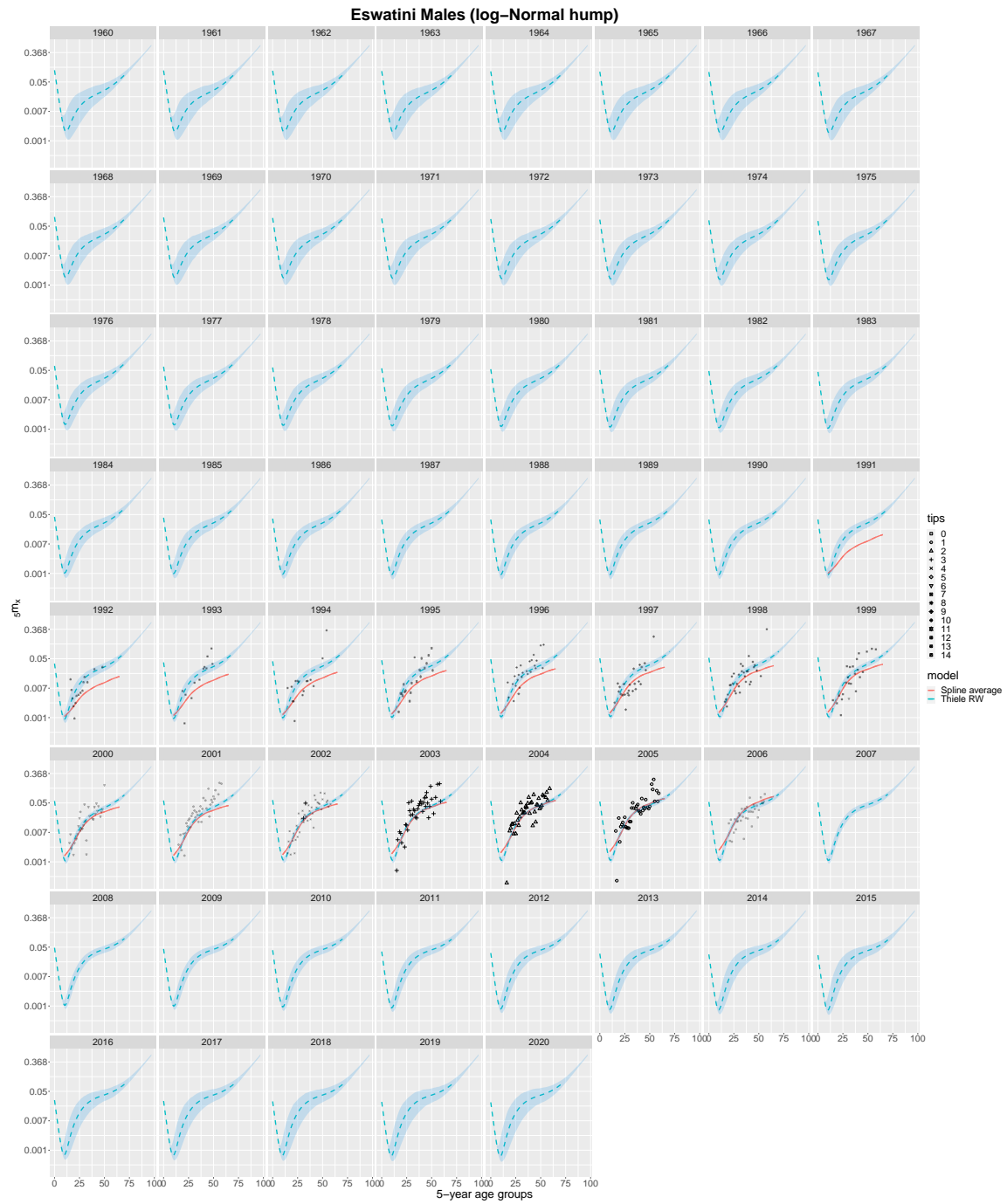


Figure 8: Mortality Schedules

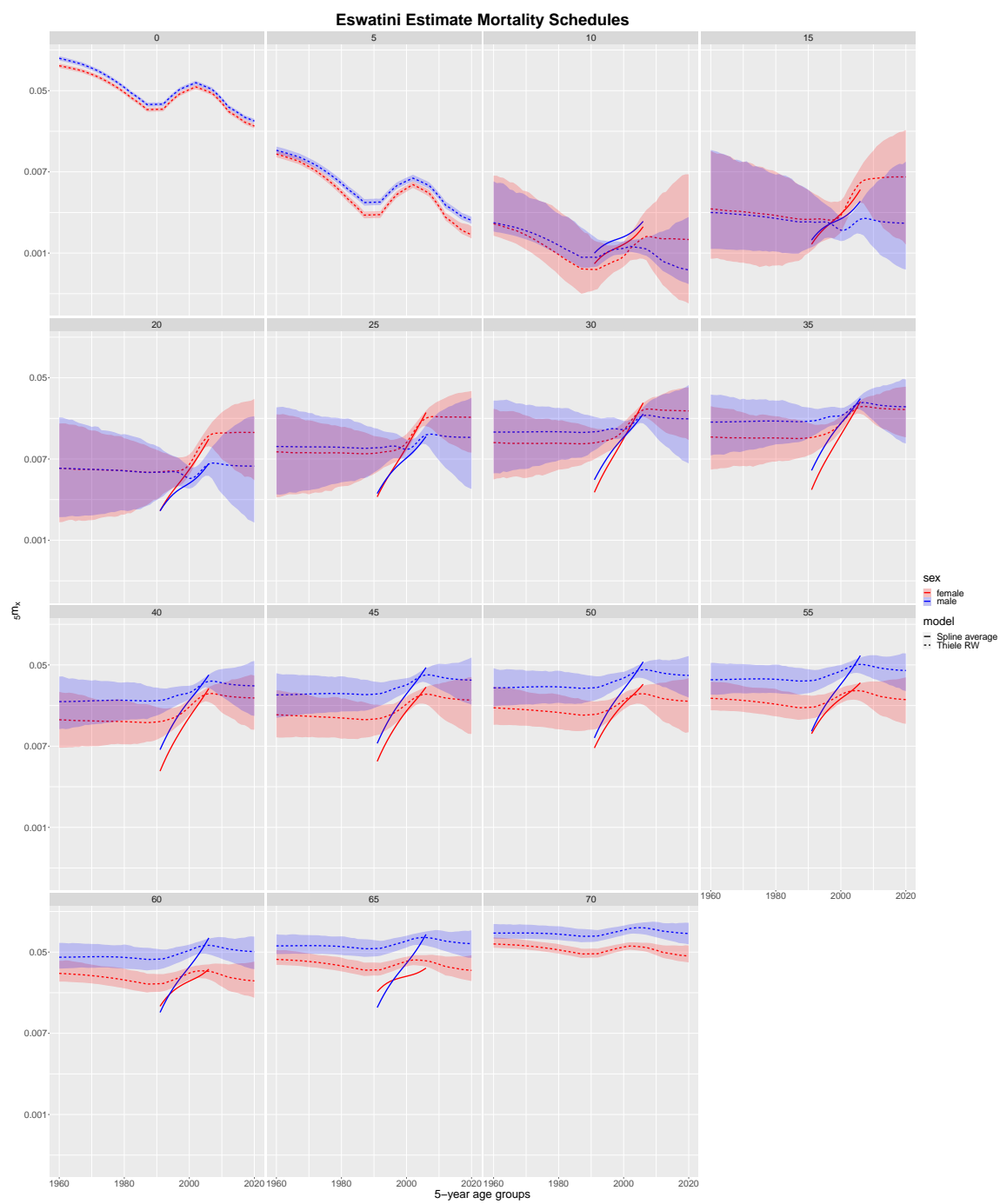


Figure 9: Mortality Schedules

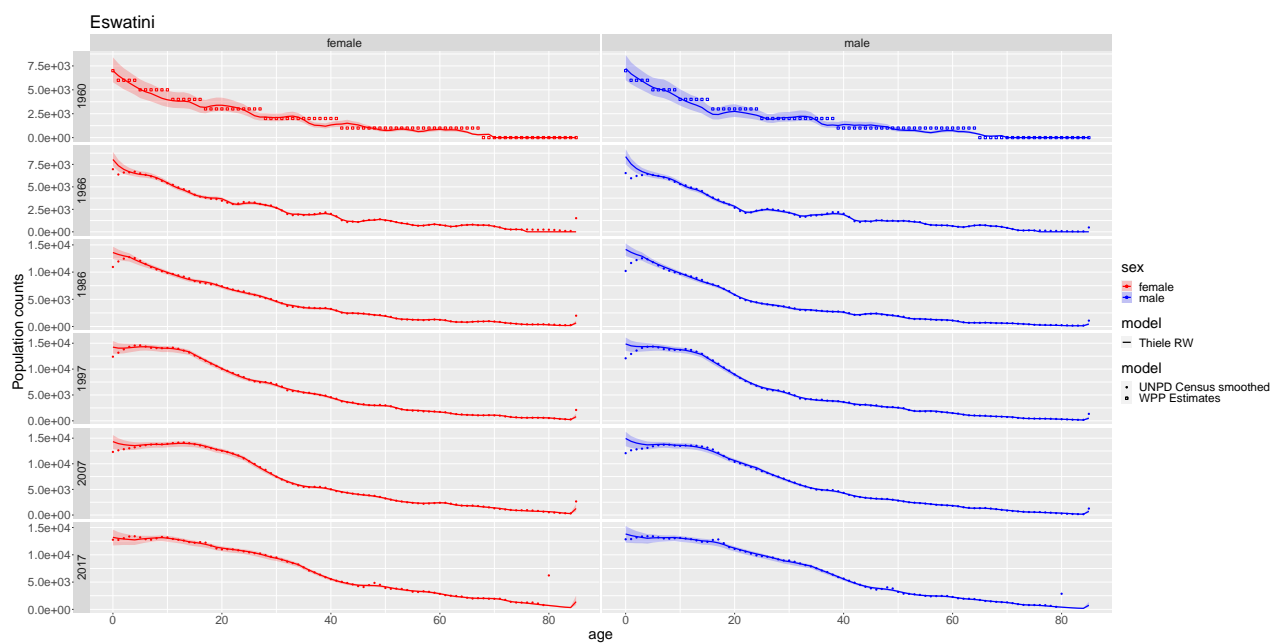


Figure 10: Population

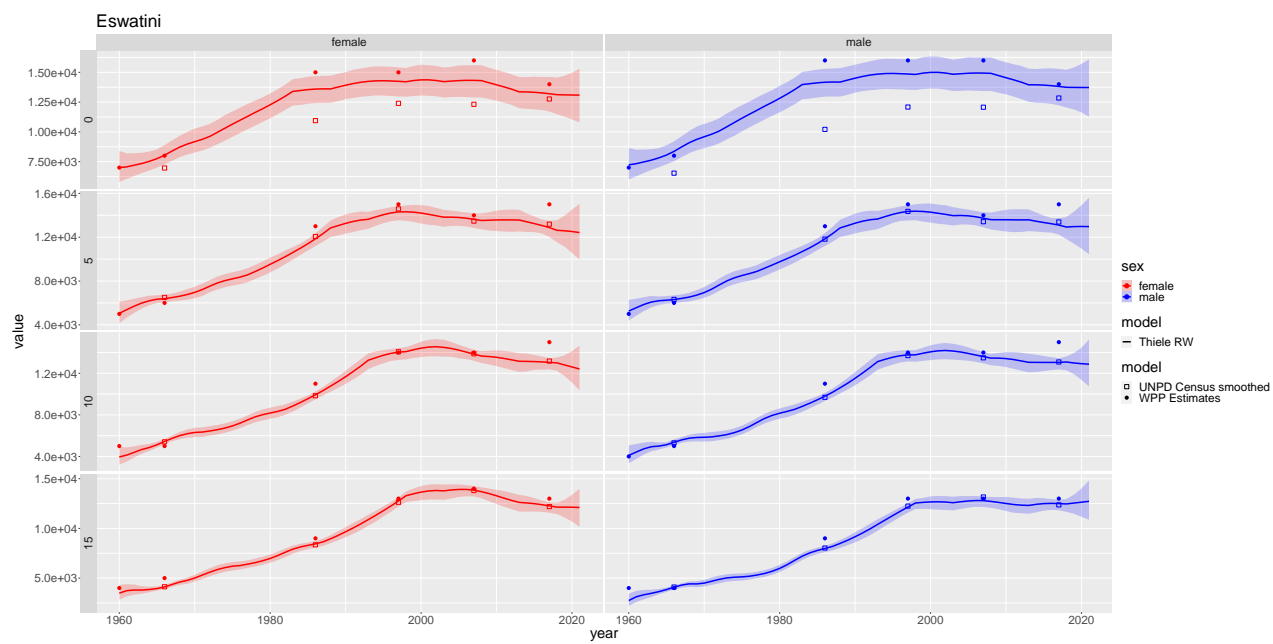


Figure 11: Population

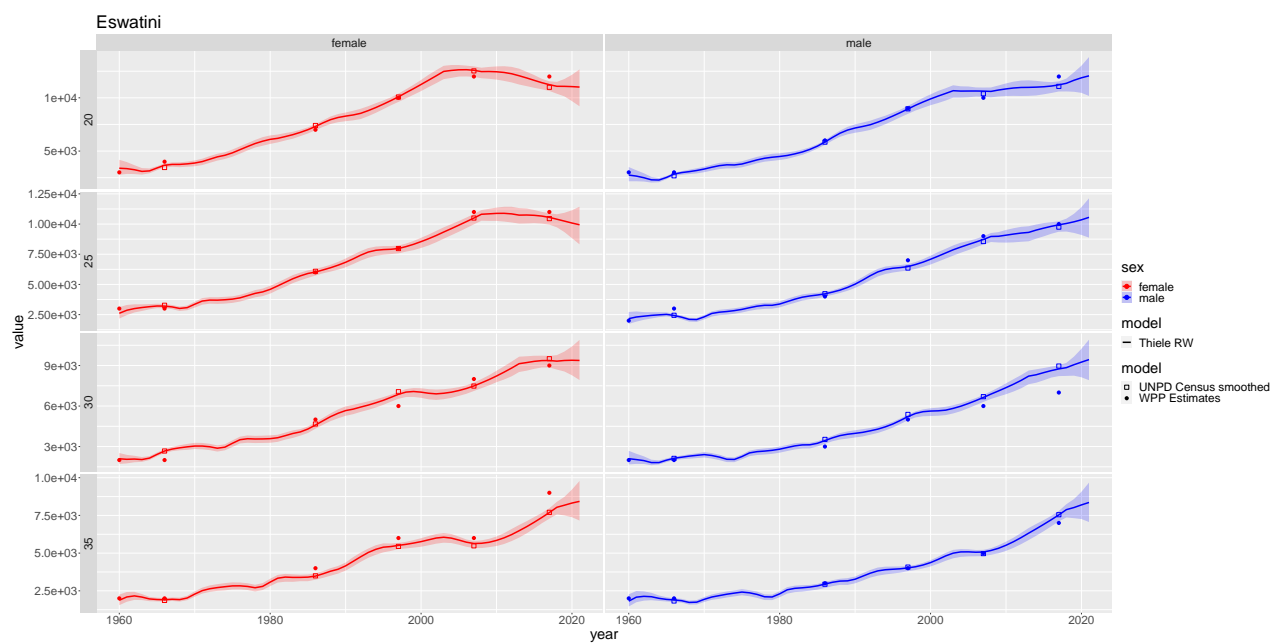


Figure 12: Population



Figure 13: Population

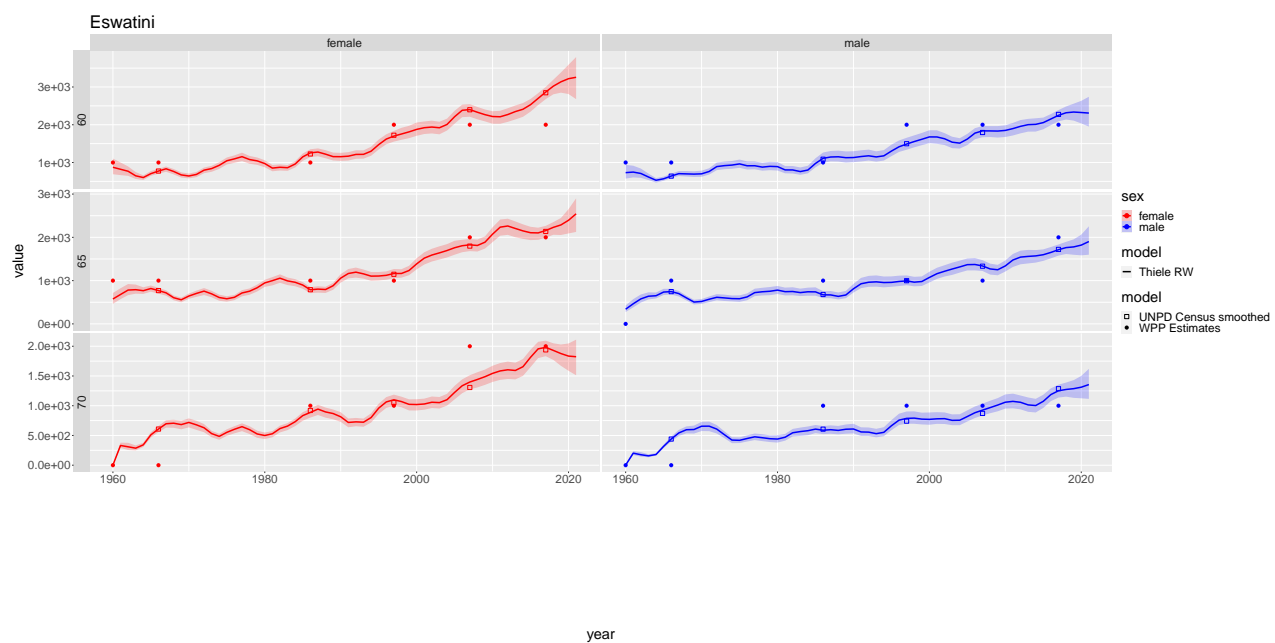


Figure 14: Population

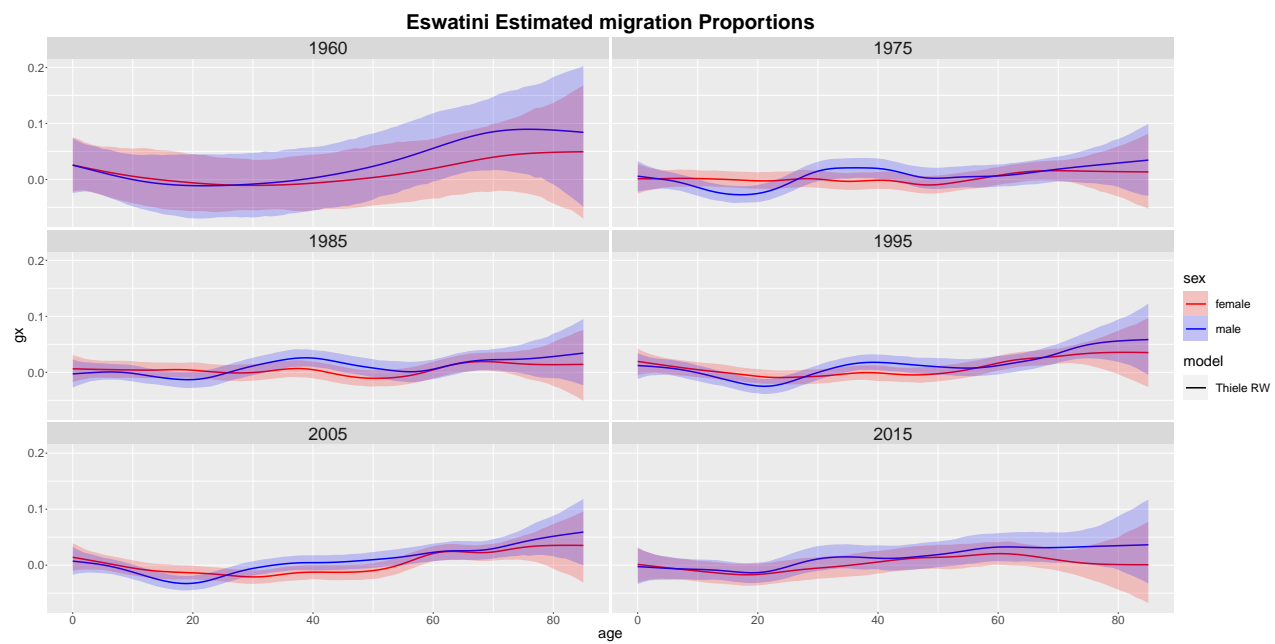


Figure 15: Migration

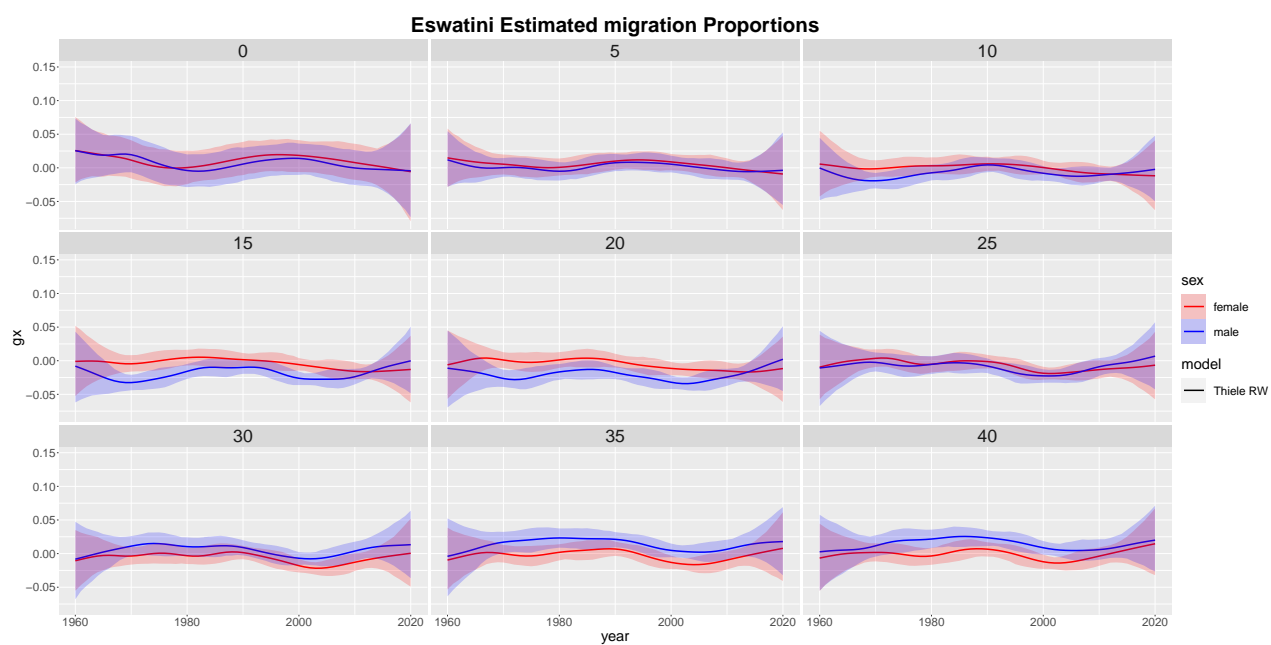


Figure 16: Migration

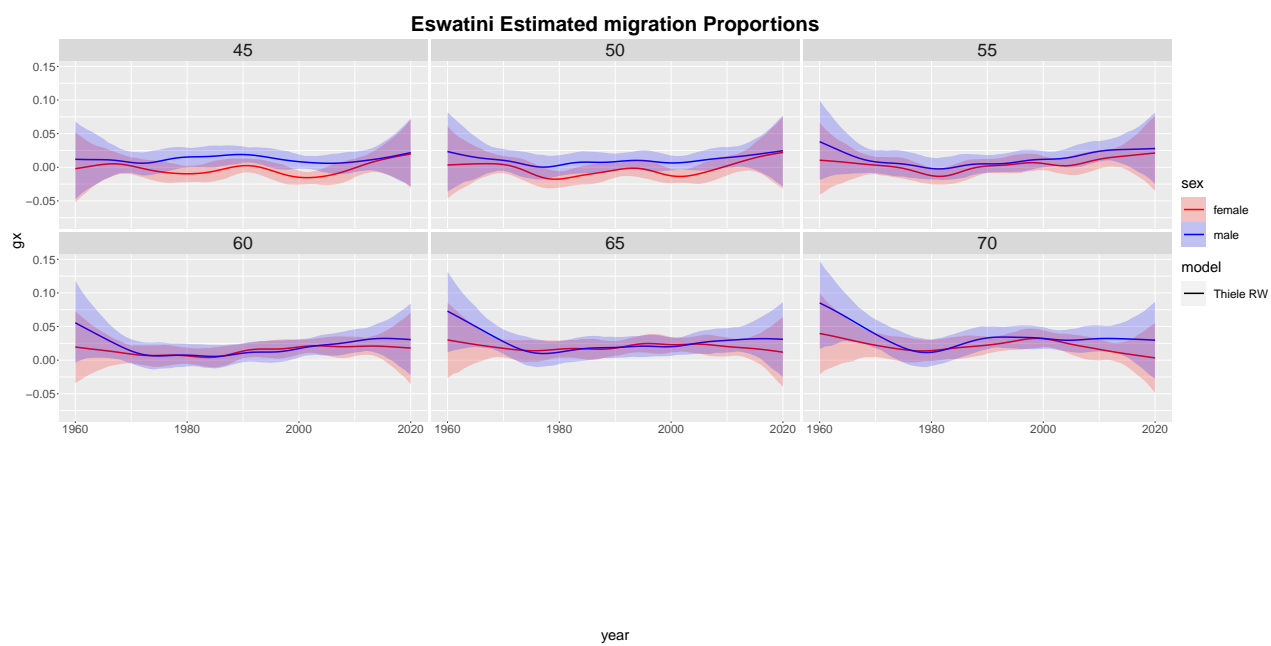


Figure 17: Migration

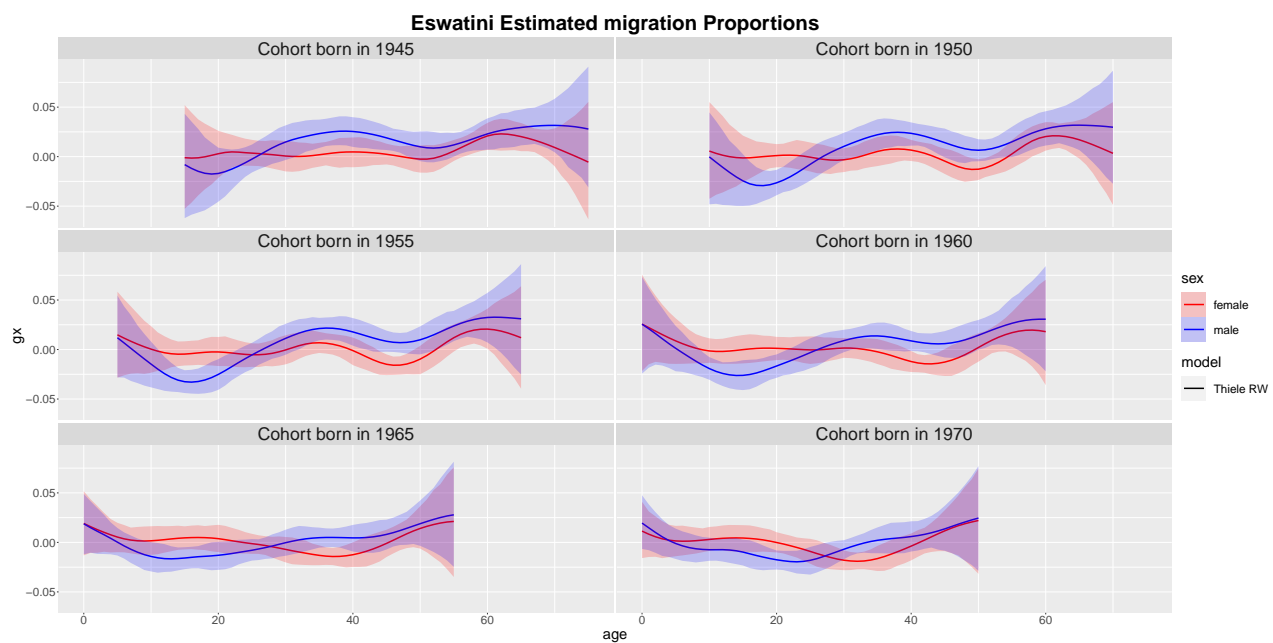


Figure 18: Migration

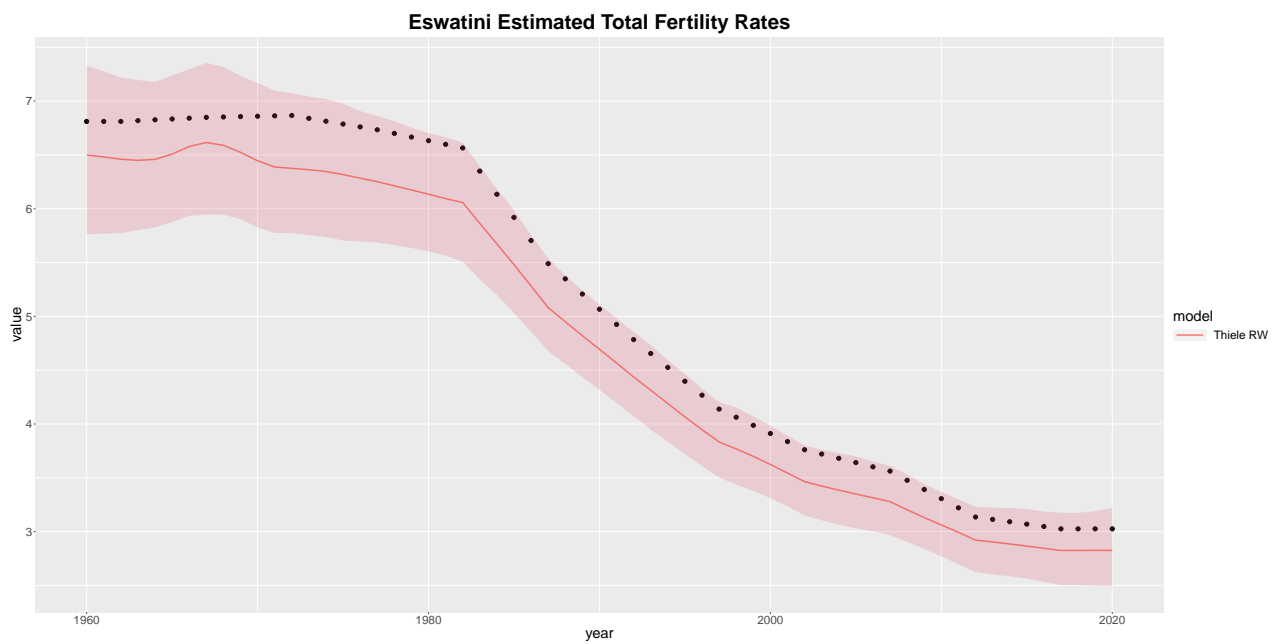


Figure 19: Total Fertility

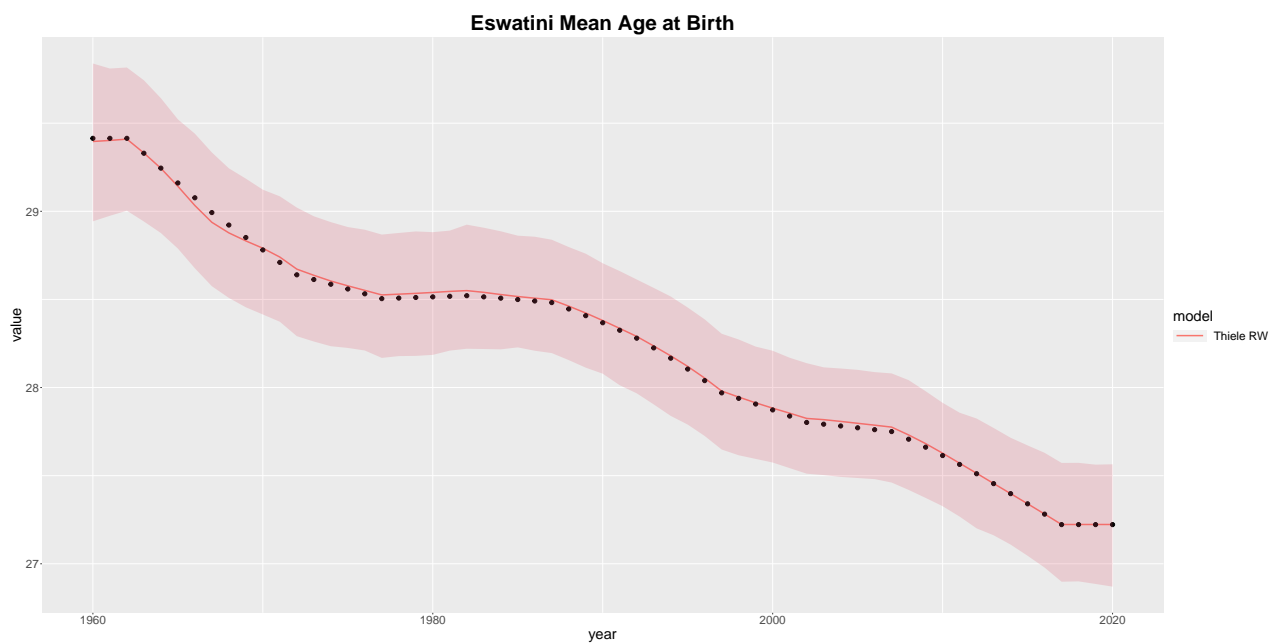


Figure 20: Mean age at births

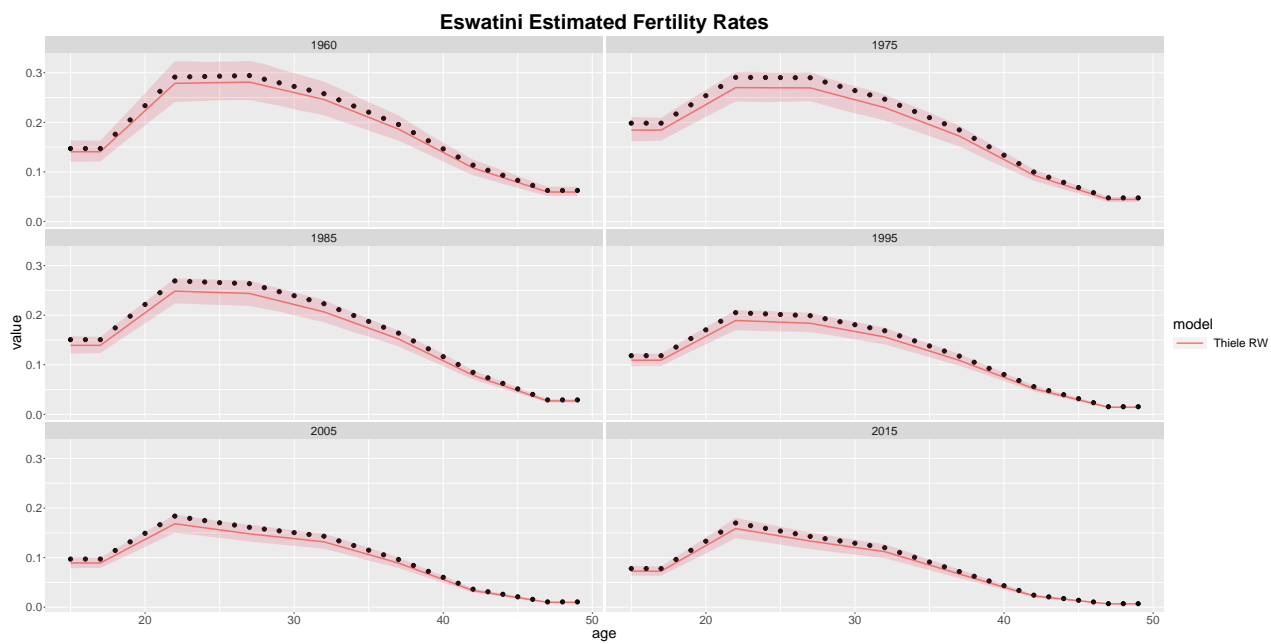


Figure 21: Fertility

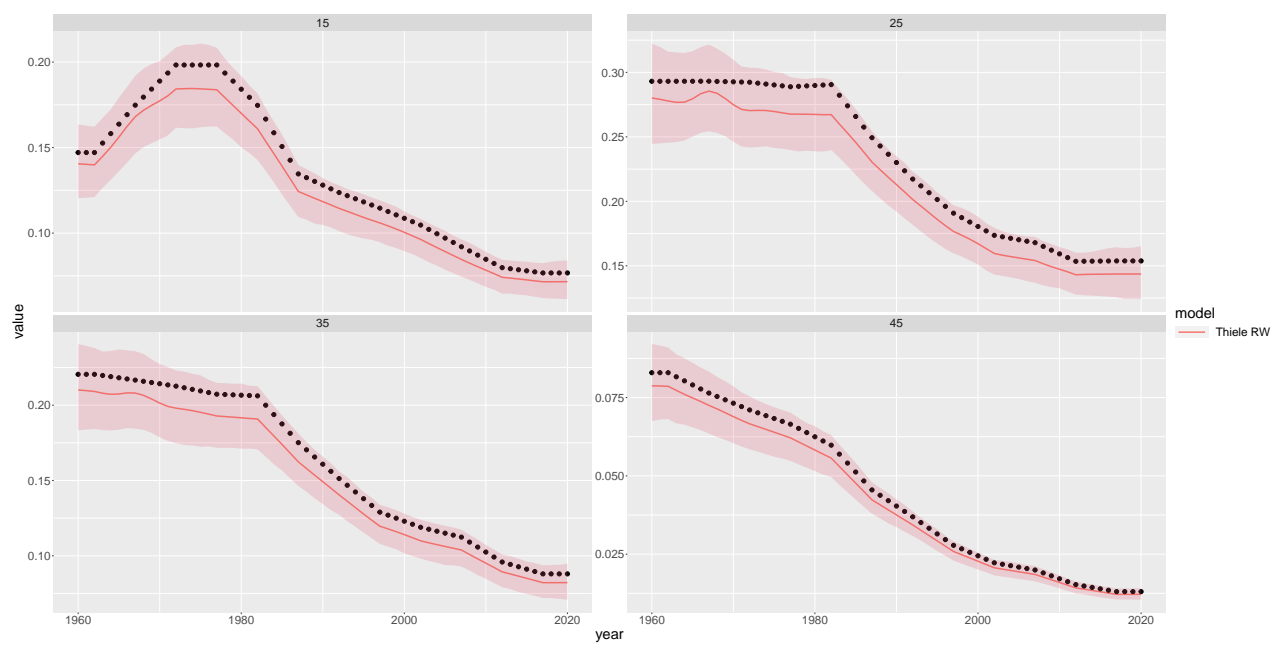


Figure 22: Fertility