

Eswatini

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

```
## # A tibble: 87 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 6586. 12375. 14081. 13027. 13356.
## 5     4 6464. 11973. 14083. 13211. 13400.
## 6     5 6326. 11623. 14074. 13468. 13192.
## 7     6 6195. 11421. 14212. 13640. 12860.
## 8     7 6059. 11125. 14263. 13753. 12766.
## 9     8 5883. 10793. 14263. 13834. 13024.
## 10    9 5666. 10396. 14119. 13798. 13262.
```

```
## # ... with 77 more rows
```

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

```
## # A tibble: 87 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 6274. 12129. 13852. 12950. 13354.
## 5     4 6211. 11720. 13886. 13108. 13401.
## 6     5 6097. 11379. 13815. 13415. 13389.
## 7     6 6000. 11212. 13959. 13620. 13195.
## 8     7 5899. 10919. 14008. 13717. 12997.
## 9     8 5765. 10584. 13998. 13728. 12957.
## 10    9 5585. 10179. 13860. 13563. 13046.
```

```
## # ... with 77 more rows
```

Thiele log-Normal Hump Spline

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

##	log_tau2_logpop_f	log_tau2_logpop_f	log_tau2_logpop_m	log_tau2_logpop_m
##	6.62832445	-0.06958520	6.59069466	-1.06958520
##	log_tau2_gx_m	log_lambda_gx_age_f	log_lambda_gx_age_m	log_lambda_gx_age_m
##	2.99101375	7.55435612	6.43050321	8.06958520
##	log_lambda_gx_agemtime_m	log_lambda_tp	log_lambda_tp_0_inflated_sd	log_lambda_tp_0_inflated_sd
##	6.90775300	2.01218630	1.23120163	1.23120163
##	log_marginal_prec_psi_f	log_marginal_prec_A_f	log_marginal_prec_B_f	log_marginal_prec_B_f
##	4.33063806	6.81226079	6.84542782	4.33063806
##	log_marginal_prec_B_m	log_lambda_phi_f	log_lambda_psi_f	log_lambda_psi_f
##	6.76249047	4.36081167	4.33705747	0.36081167
##	log_lambda_A_f	log_lambda_B_f	log_lambda_phi_m	log_lambda_phi_m
##	4.30691972	4.30767449	4.36758993	4.30767449
##	log_lambda_epsilon_m	log_lambda_A_m	log_lambda_B_m	log_lambda_B_m
##	3.89112279	4.30672405	4.30392332	4.30672405

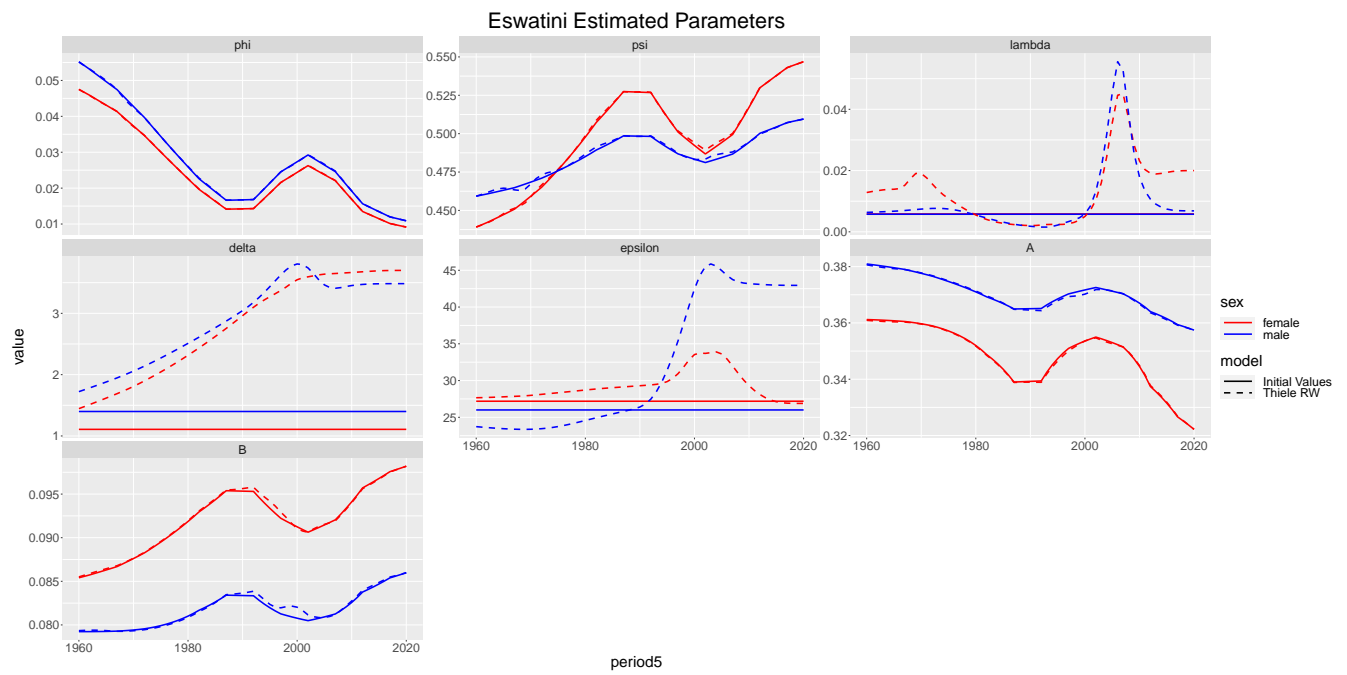


Figure 1: Estimated parameters

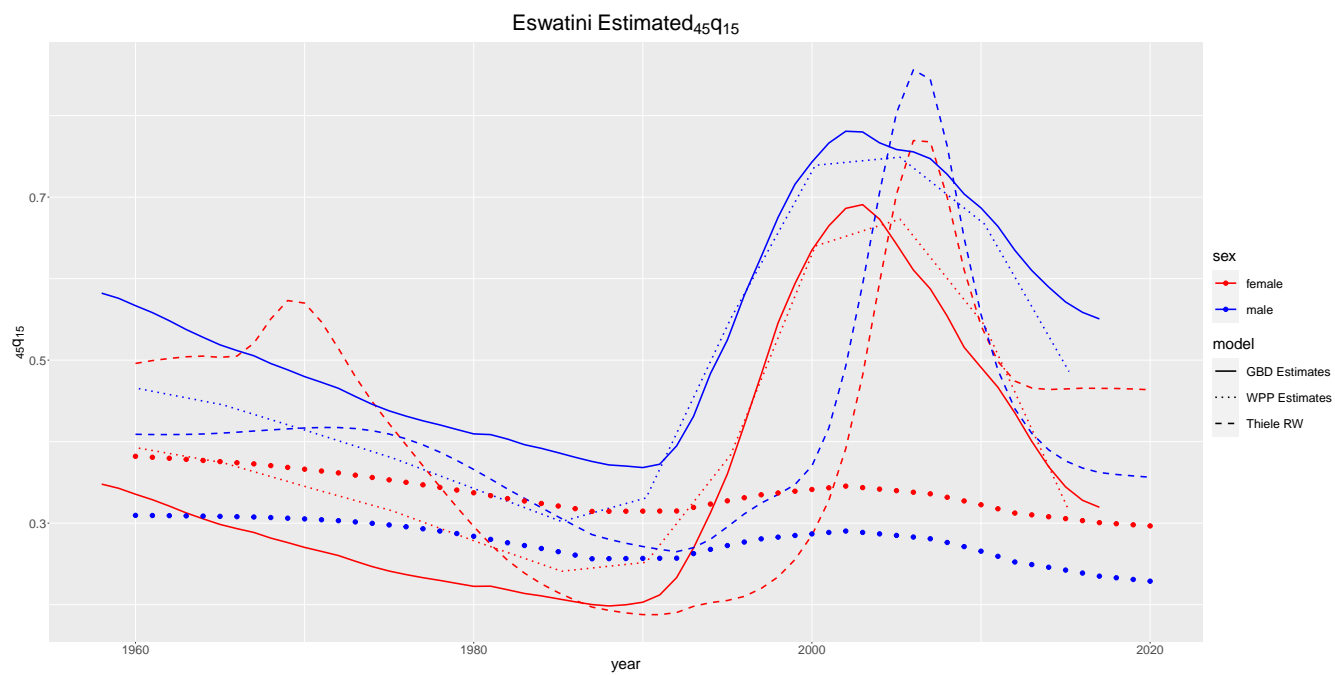


Figure 2: Estimated $_{45}q_{15}$

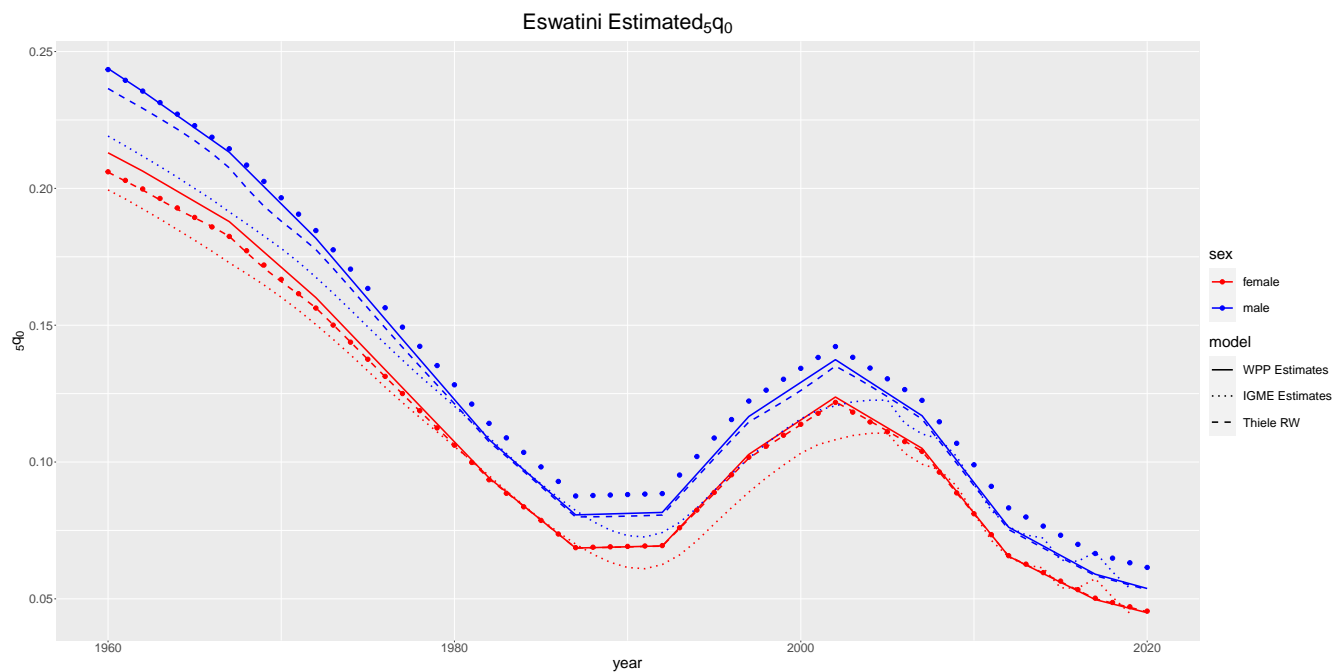


Figure 3: Estimated ${}_5q_0$

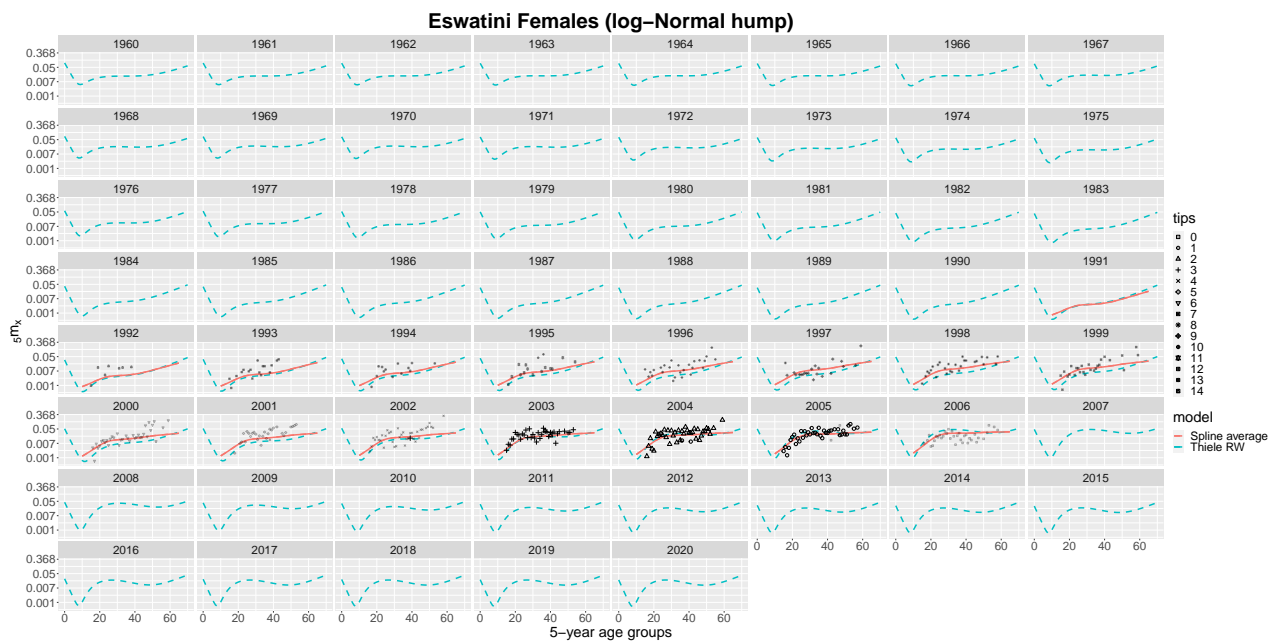


Figure 4: Mortality Schedules

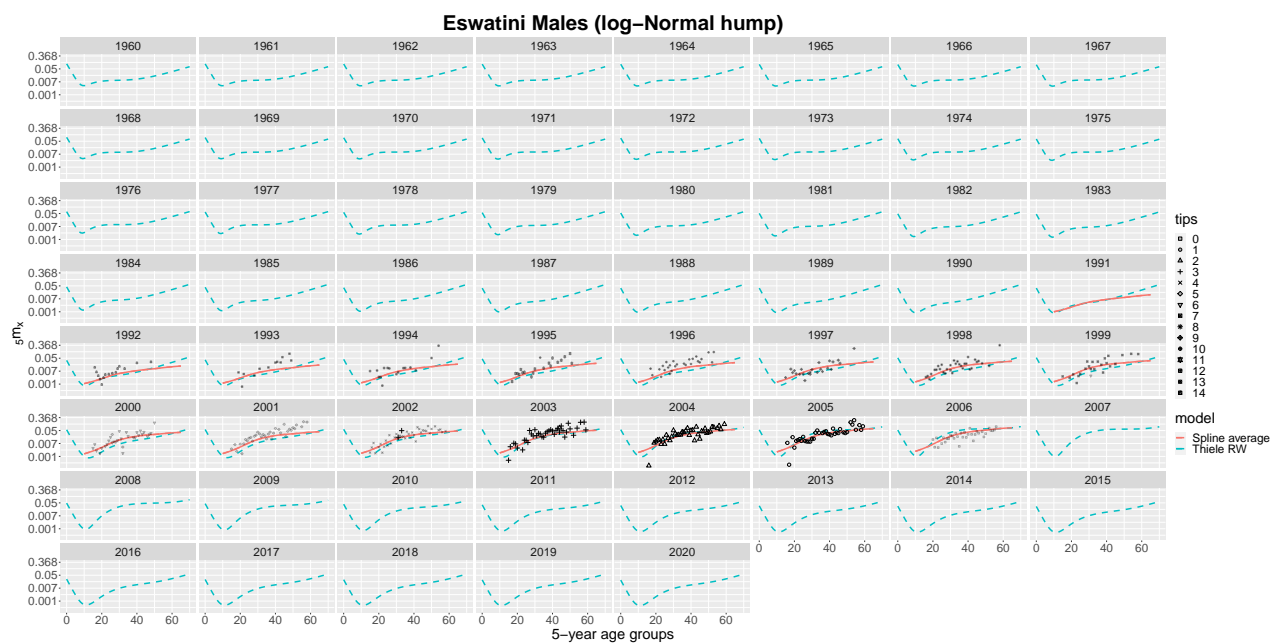


Figure 5: Mortality Schedules

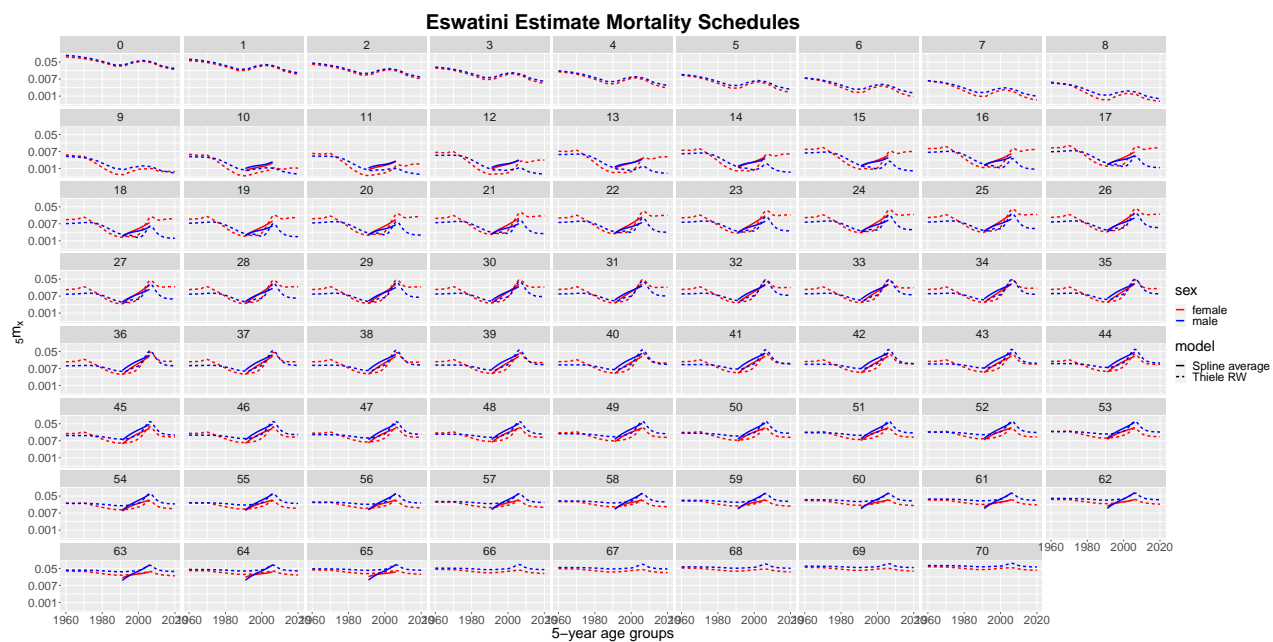


Figure 6: Mortality Schedules

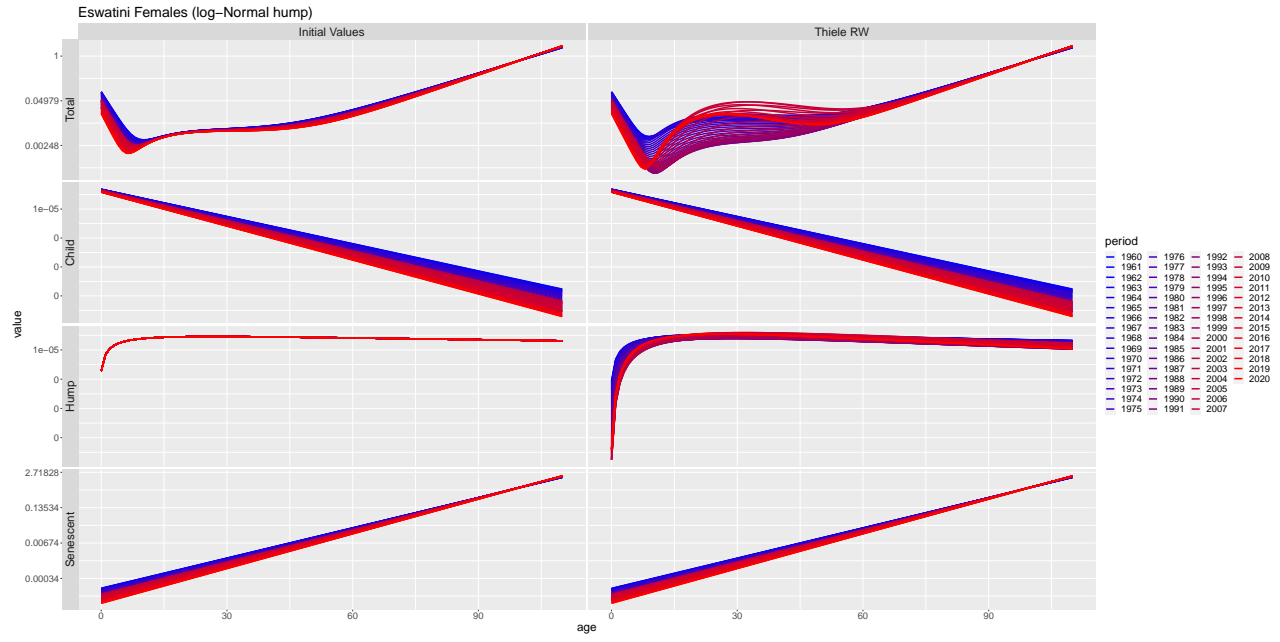


Figure 7: Thiele Decomposed

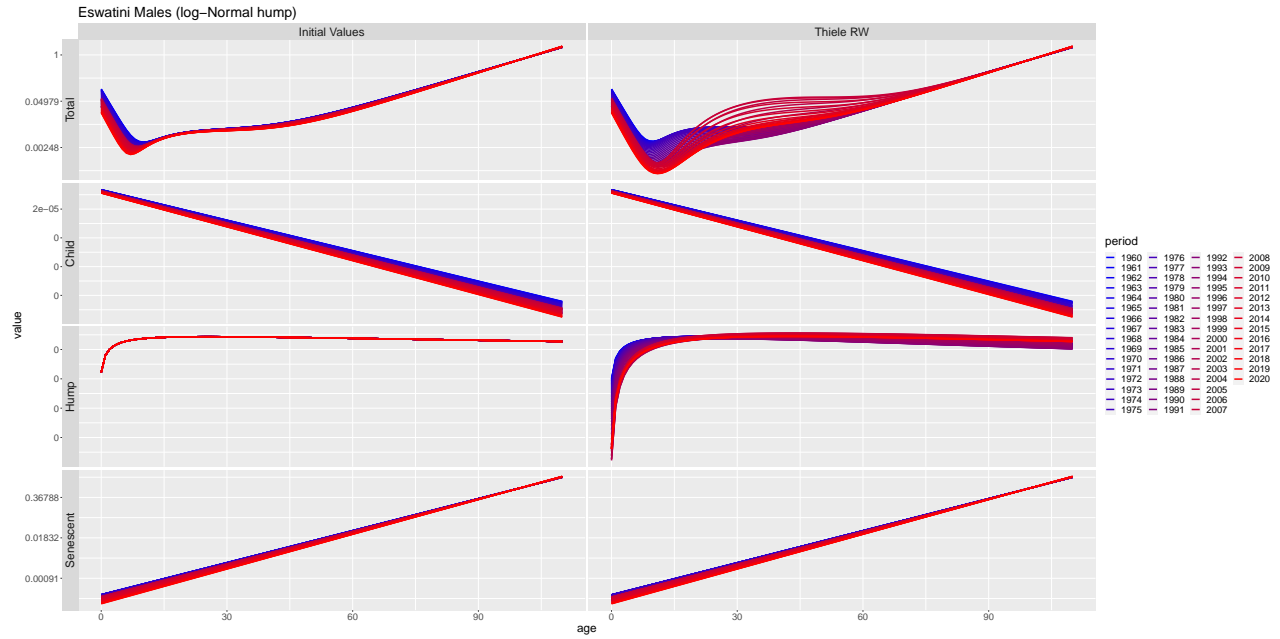


Figure 8: Thiele Decomposed

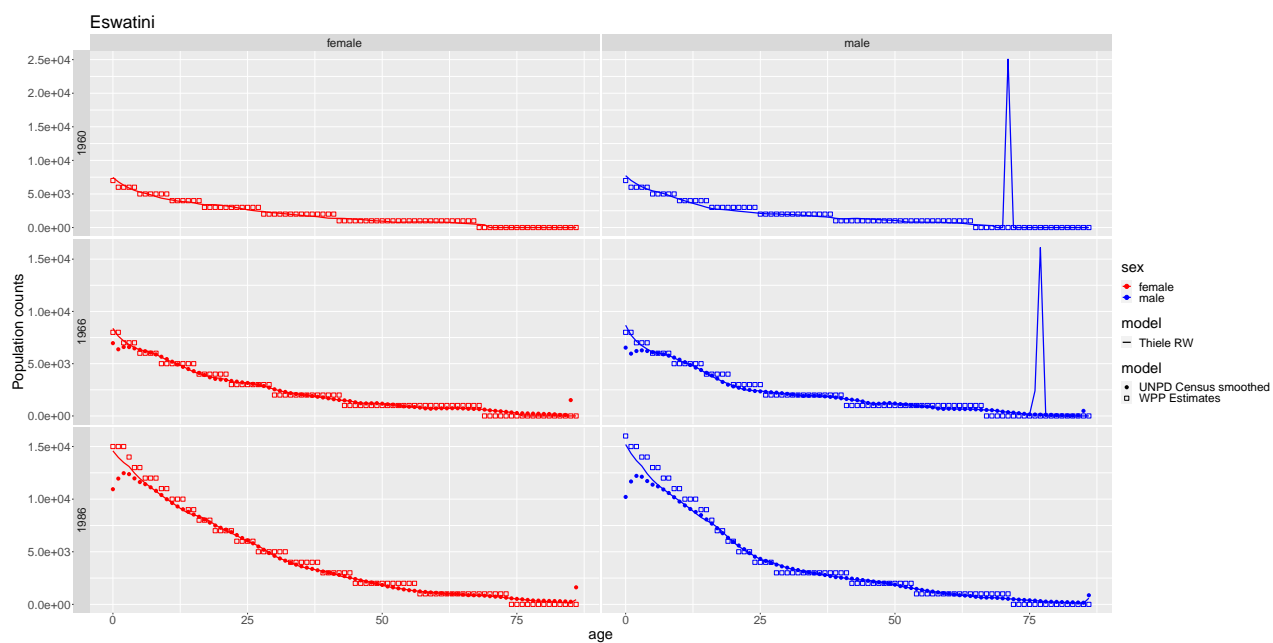


Figure 9: Population

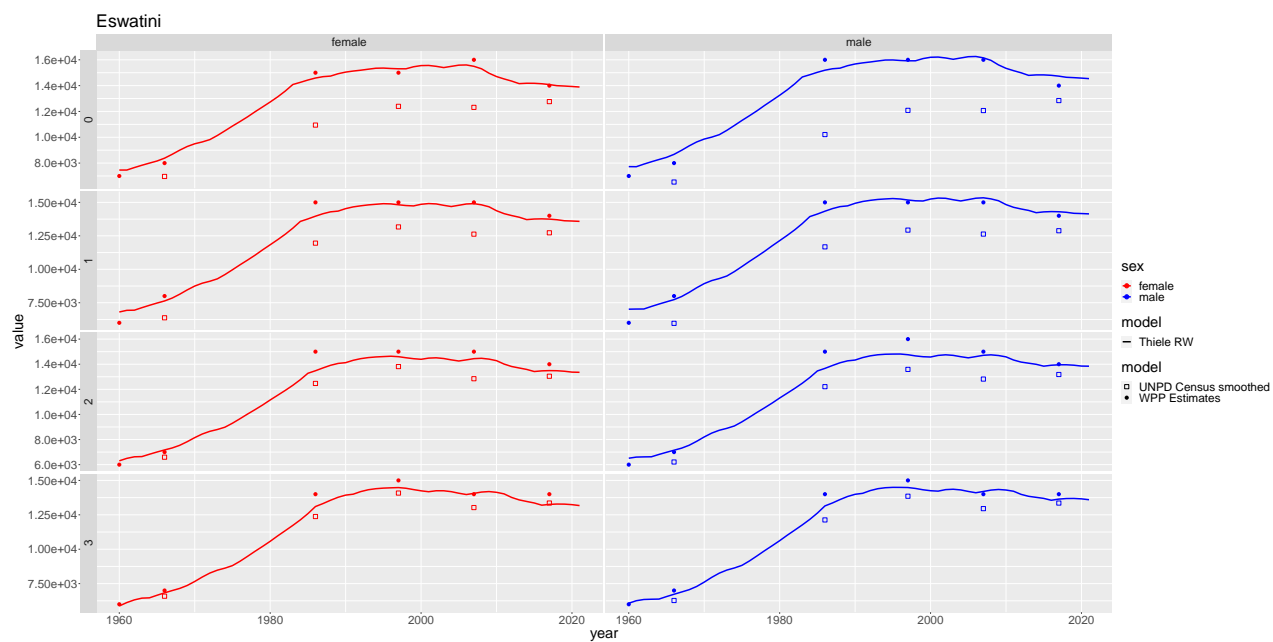


Figure 10: Population

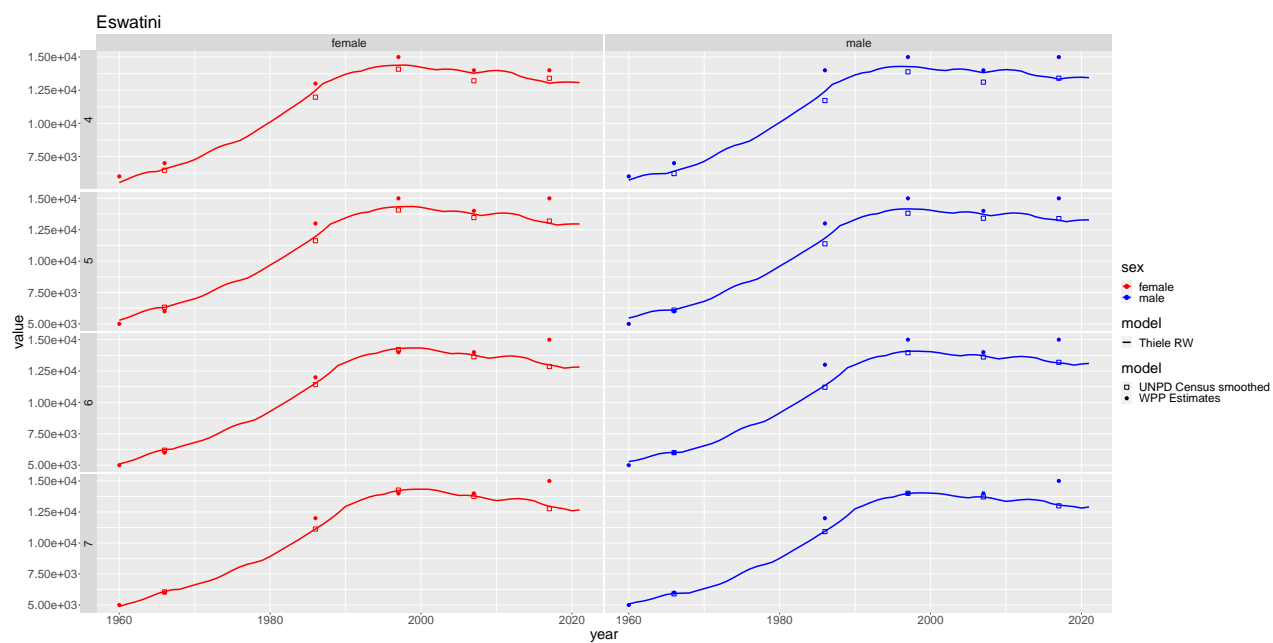


Figure 11: Population



Figure 12: Population



Figure 13: Population

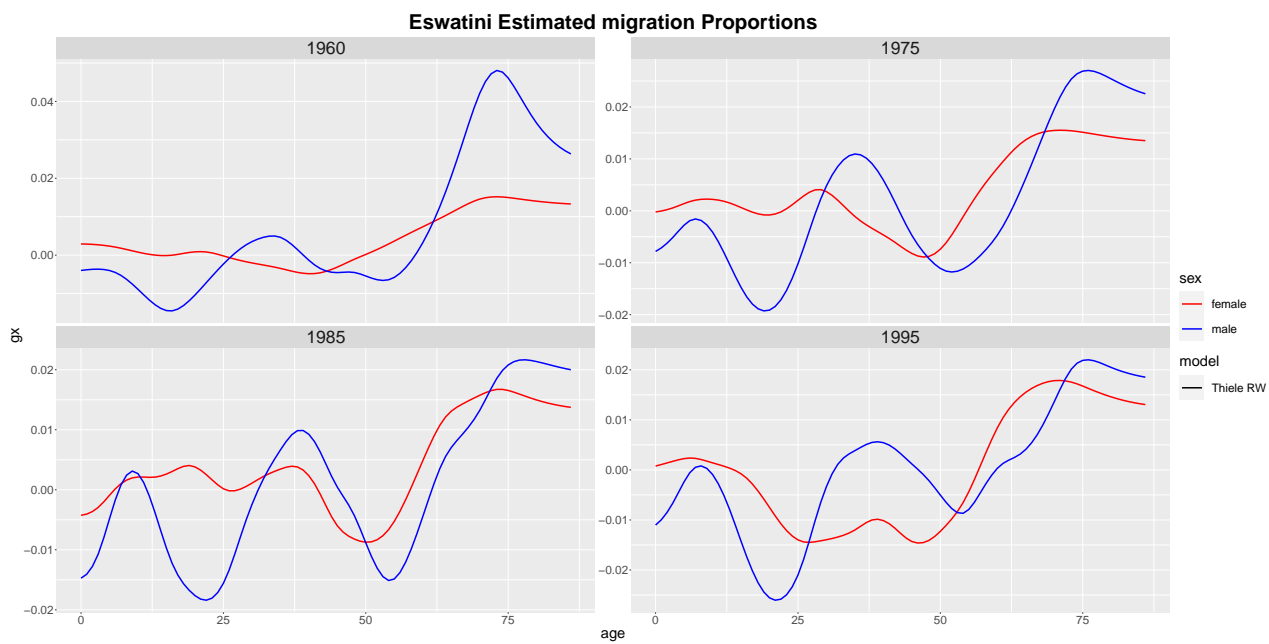


Figure 14: Migration

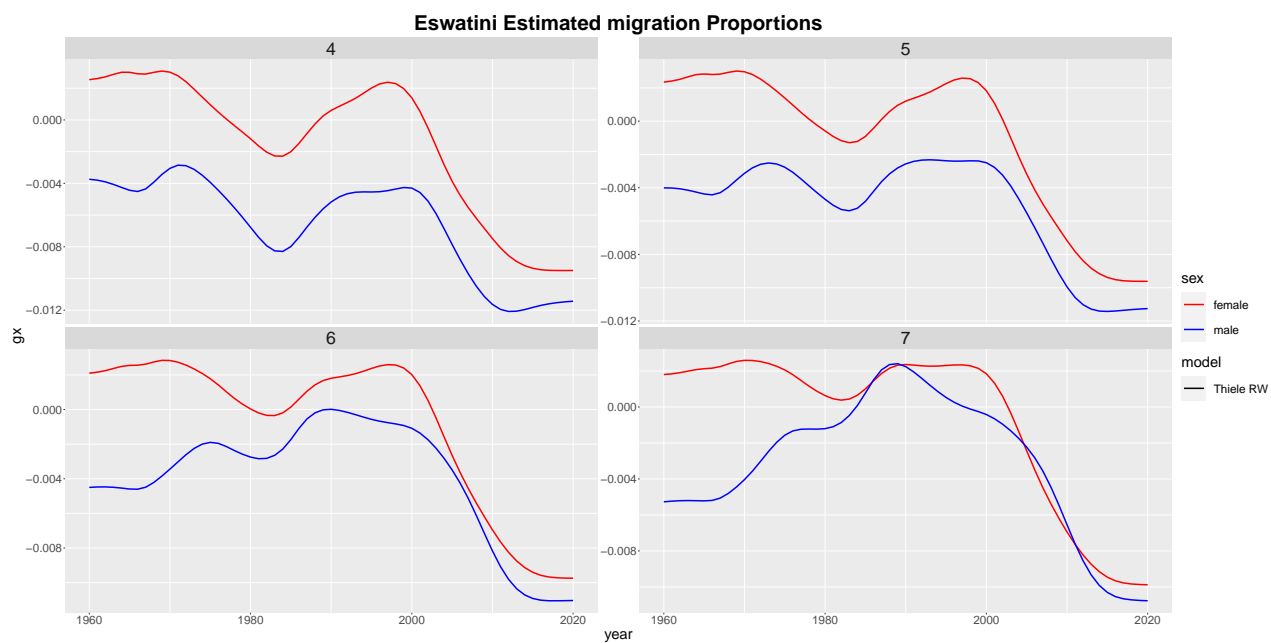


Figure 15: Migration

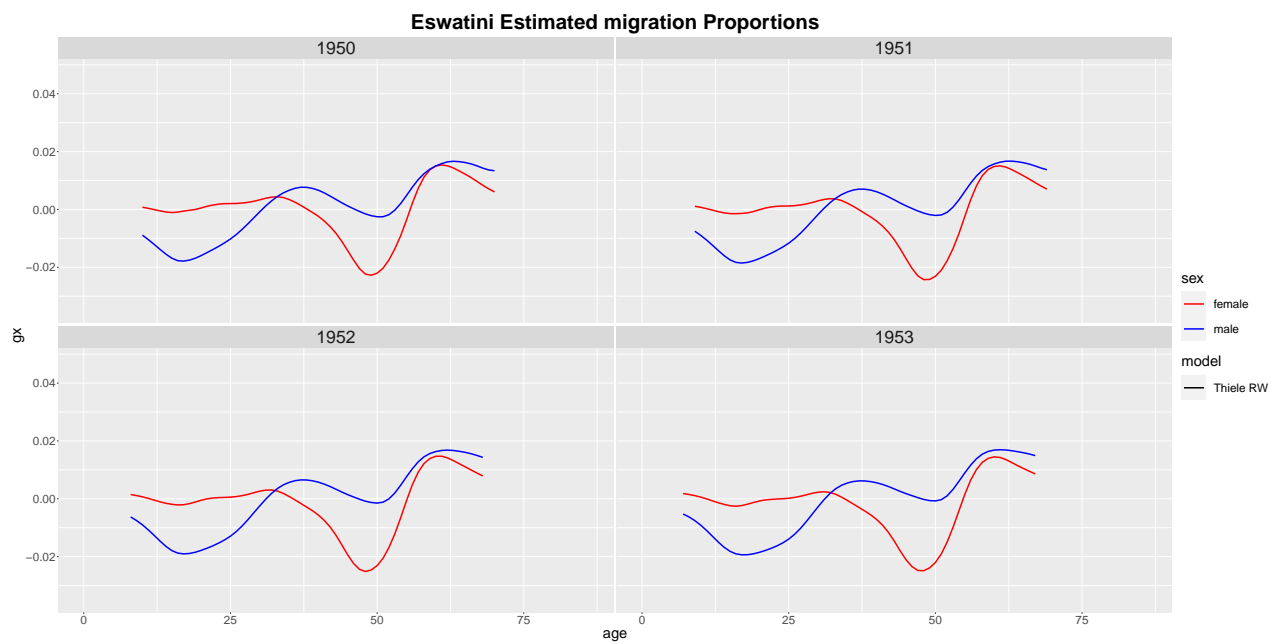


Figure 16: Migration

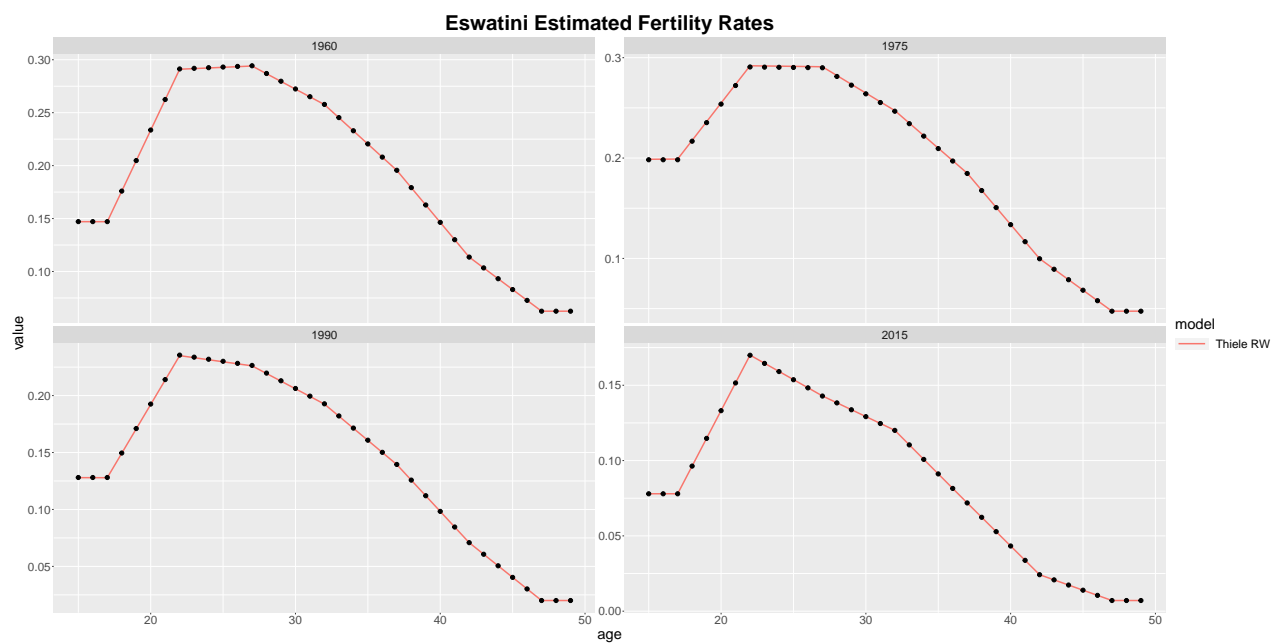


Figure 17: Fertility

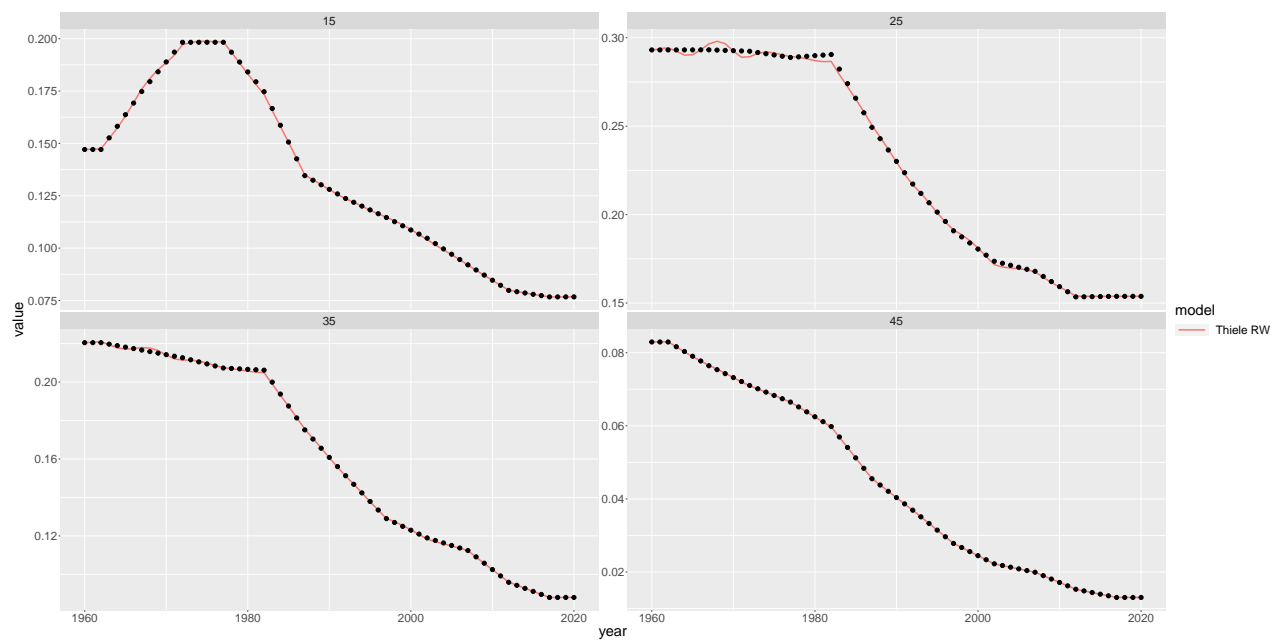


Figure 18: Fertility

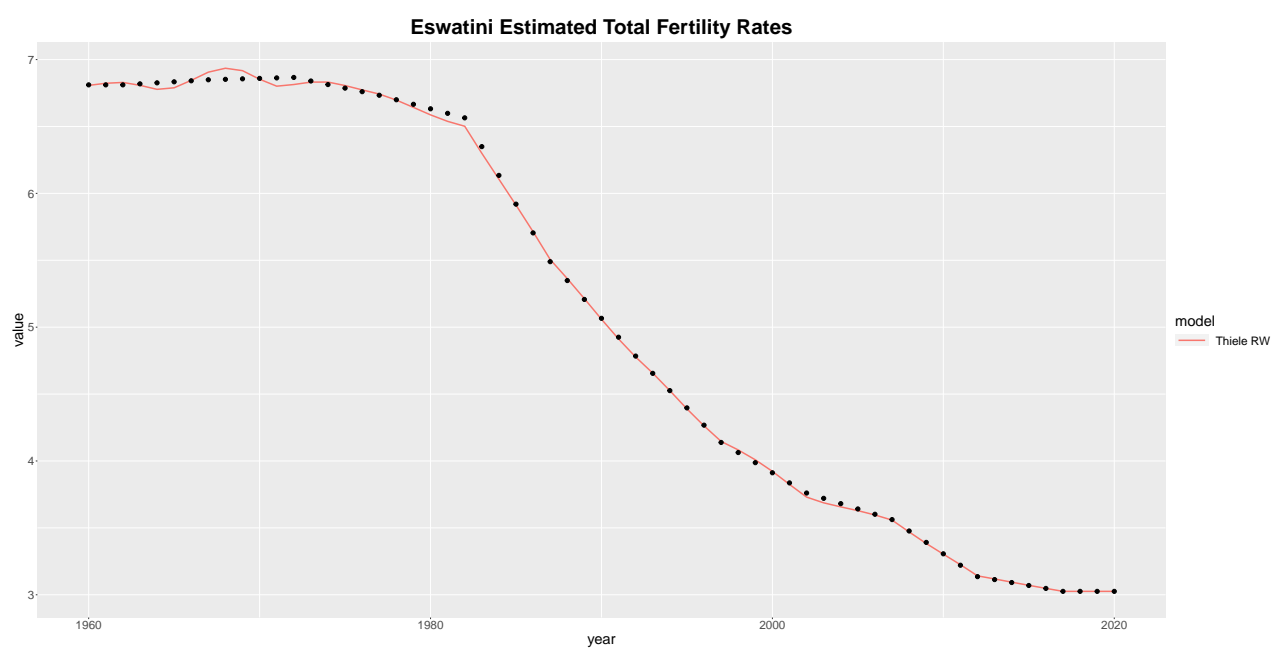


Figure 19: Total Fertility