Kenya

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

```
## # A tibble: 87 x 7
##      age  `1962`  `1969`  `1989`  `1999`  `2009`  `2019`
##    <dbl>   <dbl>   <dbl>   <dbl>   <dbl>   <dbl>   <dbl>
##  1     0 114962. 180506  401598. 543989. 605394. 549078.
##  2     1 124197. 208046. 365428. 433581. 566581. 575921.
##  3     2 141646. 212504. 376228. 440024. 584414. 597634.
##  4     3 141163. 208169. 374954. 426463. 584282. 605051.
##  5     4 137277. 201220. 364729. 419005. 575004. 606889.
##  6     5 132355. 193236. 359361. 418545. 569714. 612009.
##  7     6 130667. 187473. 354091. 413466. 563841. 619214.
##  8     7 125741. 178494. 346939. 412820. 554806. 621888.
##  9     8 118982. 169718. 336668. 409831. 544641. 623979.
## 10     9 110984. 160306. 326204. 402988. 531156. 622215.
## # ... with 77 more rows
```

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

```
## # A tibble: 87 x 7
##      age  `1962`  `1969`  `1989`  `1999`  `2009`  `2019`
##    <dbl>   <dbl>   <dbl>   <dbl>   <dbl>   <dbl>   <dbl>
##  1     0 110490. 181280  407366. 559955. 617213. 548946.
##  2     1 119896. 209856. 370701. 444554. 579266. 580058.
##  3     2 137308. 214870. 380545. 449449. 596090. 601059.
##  4     3 136838. 211596. 380154. 436388. 598339. 610883.
##  5     4 134196. 204799. 369275. 428343. 588474. 612374.
##  6     5 130987. 197270. 363605. 427563. 583454. 618083.
##  7     6 130752. 192218. 357921. 420960. 577380. 625102.
##  8     7 127766. 184027. 350596. 419629. 568521. 628228.
##  9     8 123091. 176185. 340569. 417318. 559797. 632393.
## 10     9 117015. 167407. 329977. 410545. 547094. 631604.
## # ... 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_
##                   6.9513942                   5.4232086                   7.0282283                   5
##               log_tau2_gx_m         log_lambda_gx_age_f         log_lambda_gx_age_m        log_lambda_g
##                   1.9878058                   6.3986943                   7.8728849                   1
##     log_lambda_gx_agetime_m               log_lambda_tp log_lambda_tp_0_inflated_sd           log_dispe
##                   6.9077756                   1.9345998                  -0.5024656                   0
##     log_marginal_prec_psi_f       log_marginal_prec_A_f       log_marginal_prec_B_f     log_marginal_pre
##                   4.2971025                   6.7755725                   6.5371975                   4
##       log_marginal_prec_B_m           log_lambda_phi_f            log_lambda_psi_f         log_lambda_
##                   3.2412659                   4.3187125                   4.3098547                   2
##              log_lambda_A_f              log_lambda_B_f            log_lambda_phi_m           log_lambd
##                   4.3057923                   4.3088054                   4.3019010                   4
##        log_lambda_epsilon_m              log_lambda_A_m              log_lambda_B_m
##                   4.6411082                   4.3086127                   4.3983706
```

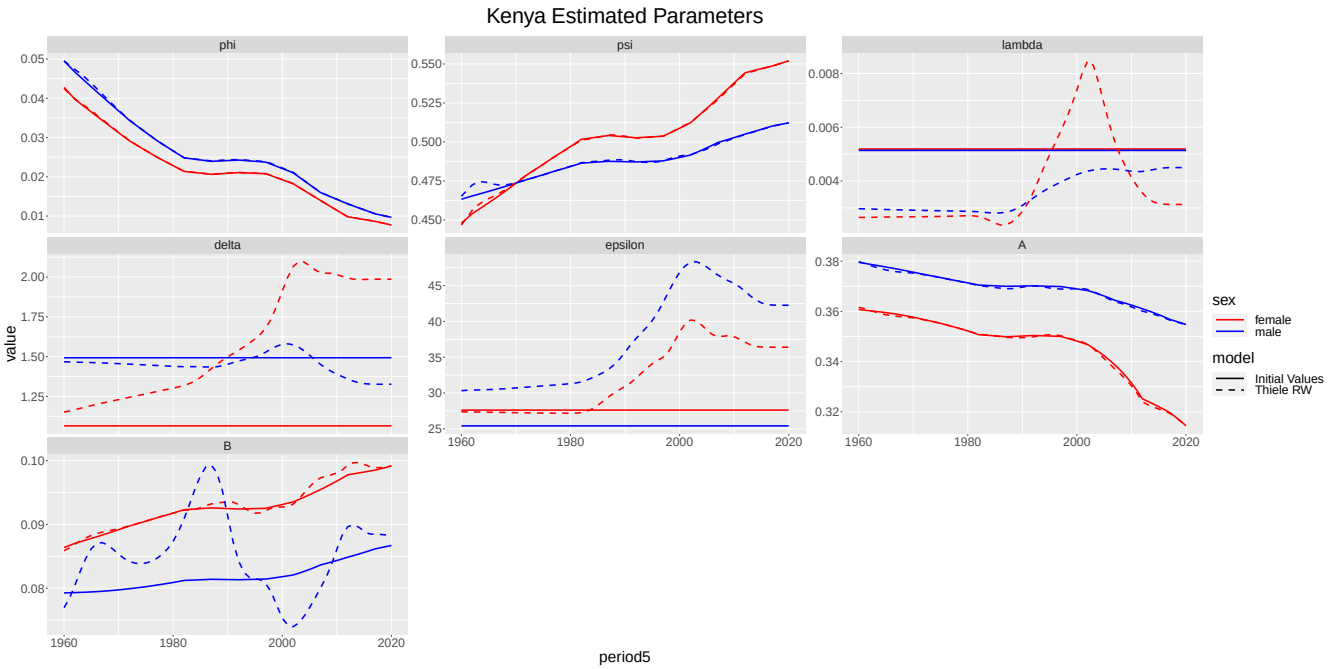

Figure 1: Estimated parameters

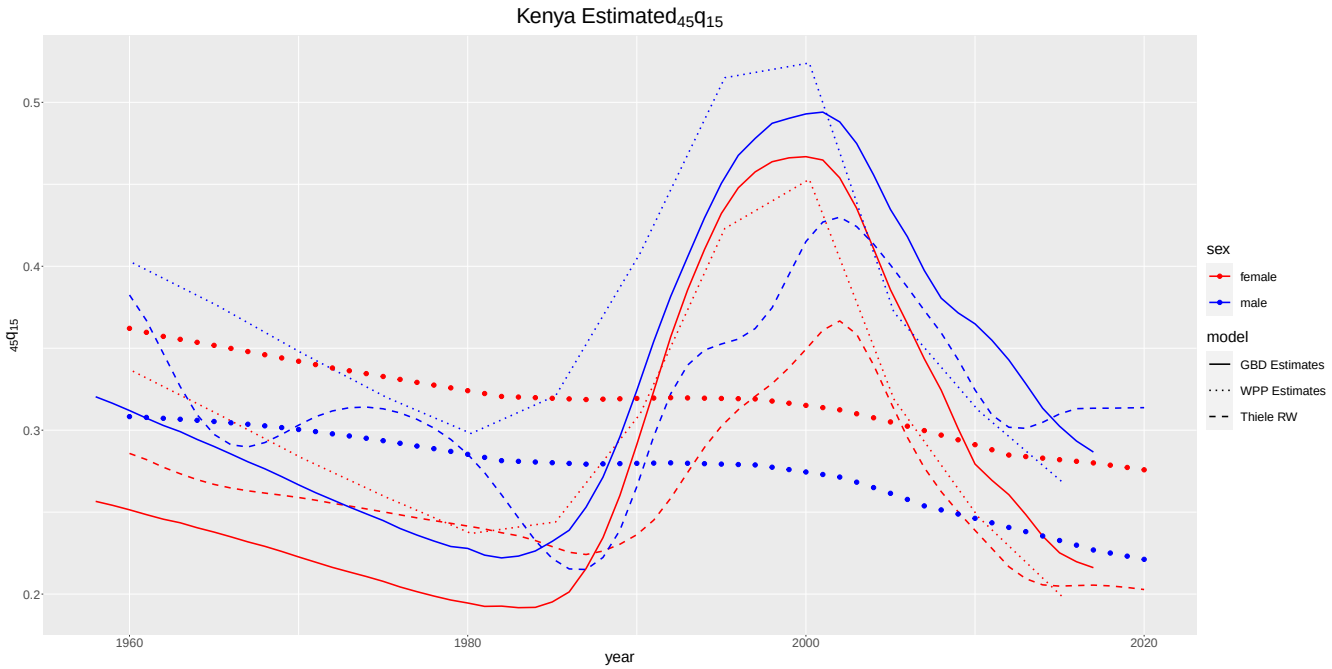

Figure 2: Estimated ${}_{45}q_{15}$

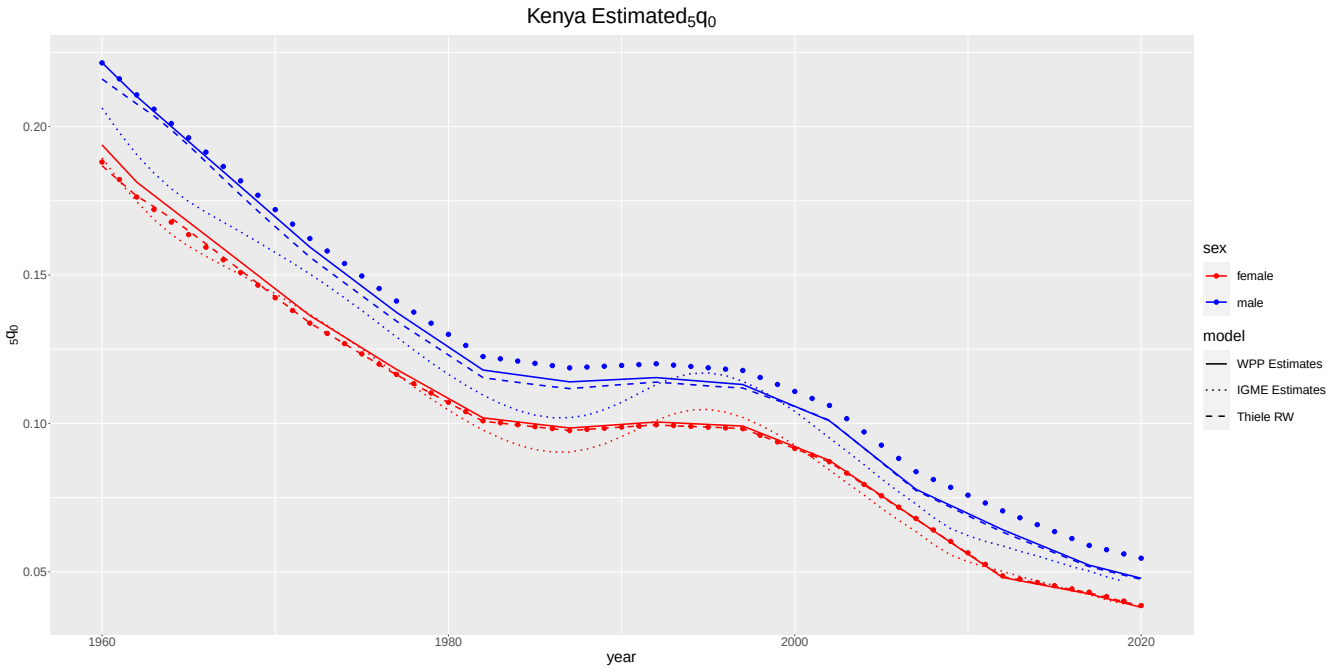

Figure 3: Estimated $_5q_0$

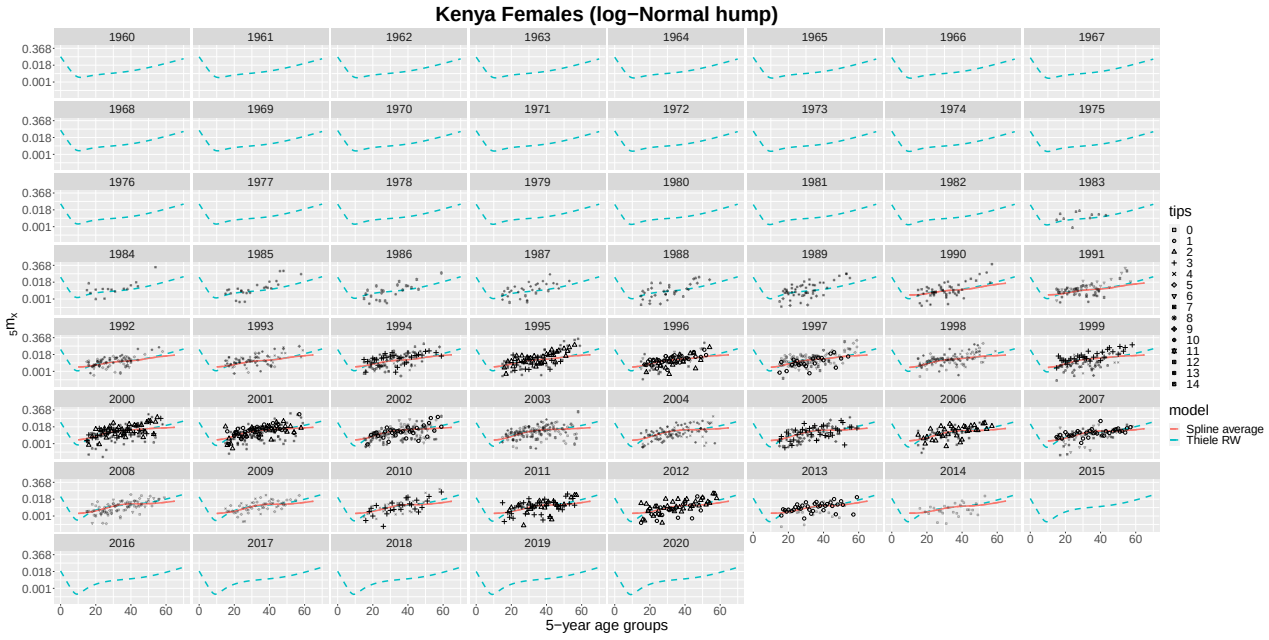

Figure 4: Mortality Schedules

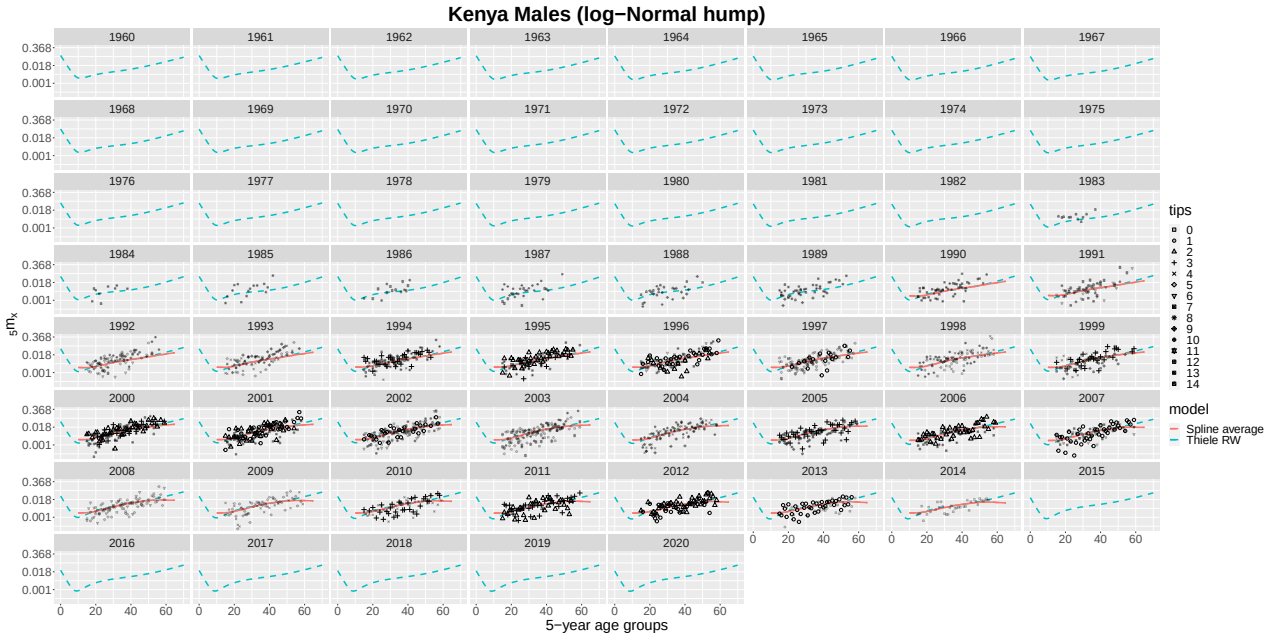

Figure 5: Mortality Schedules

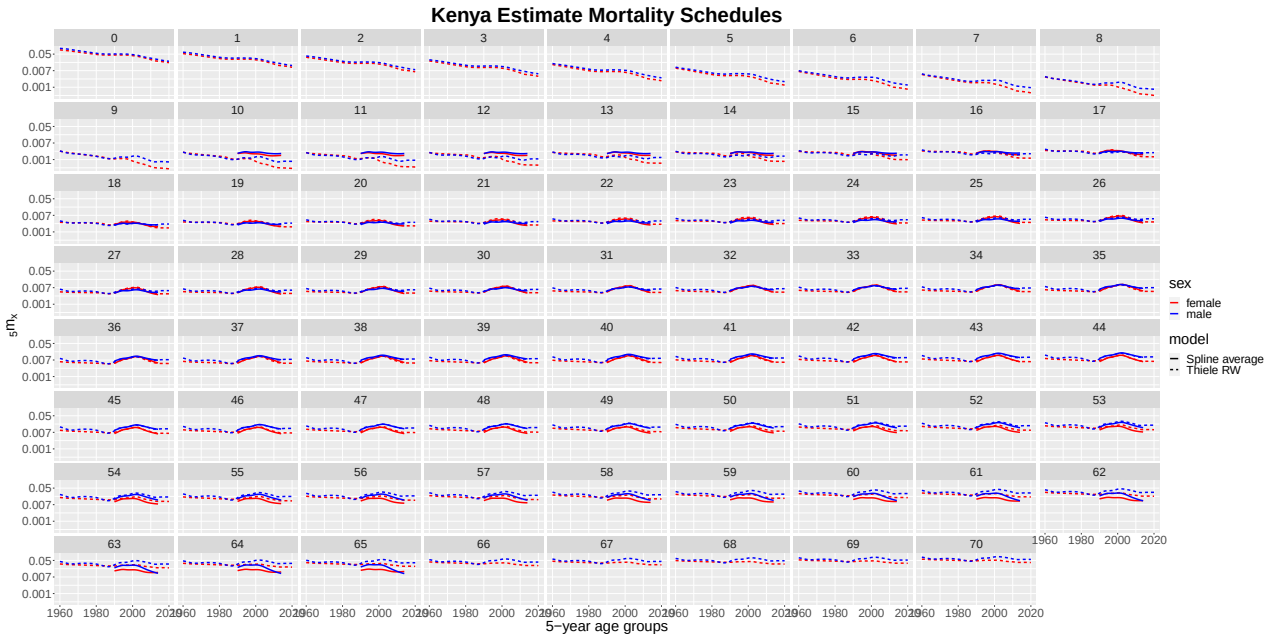

Figure 6: Mortality Schedules

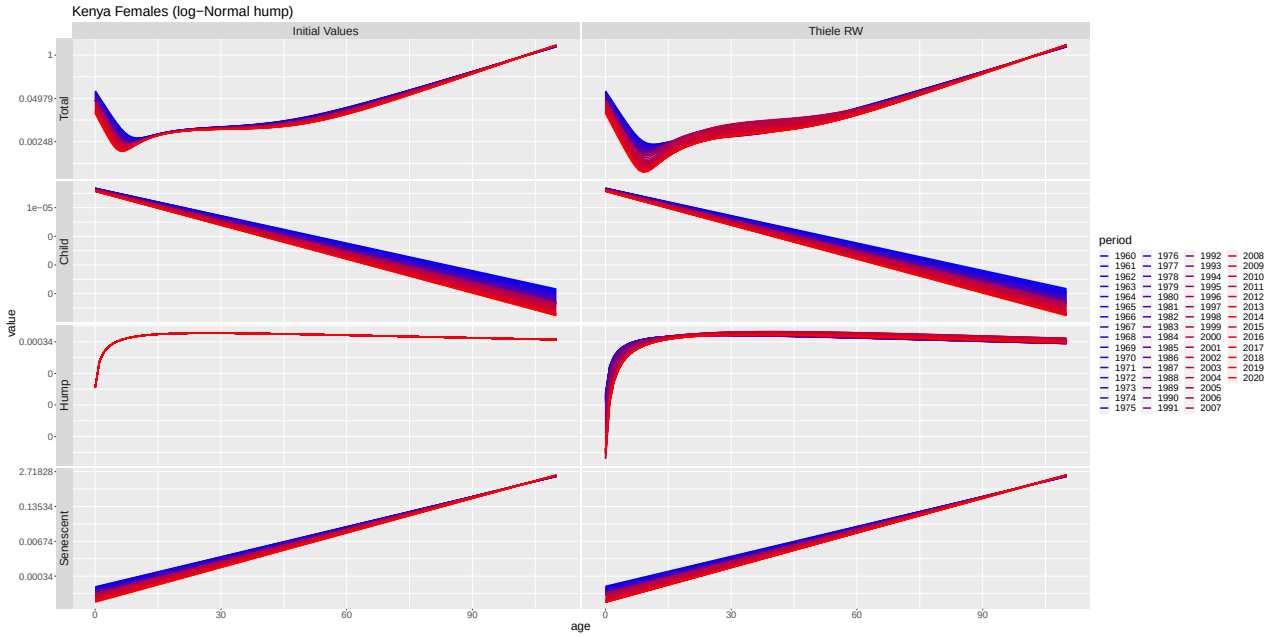

Figure 7: Thiele Decomposed

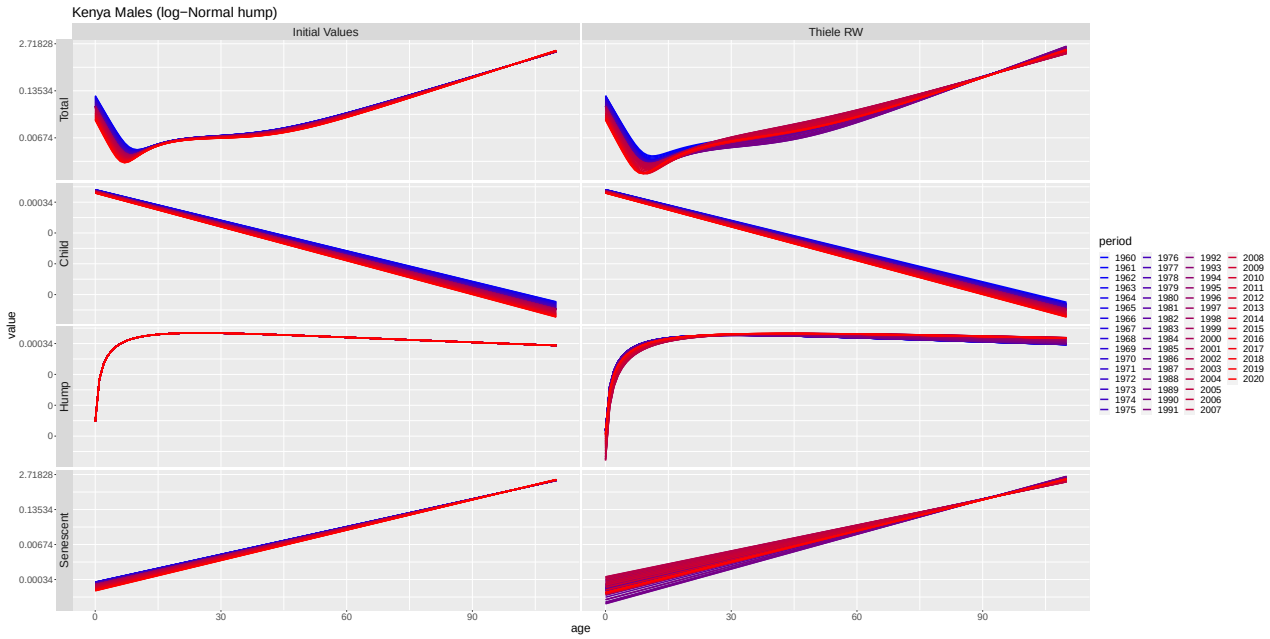

Figure 8: Thiele Decomposed

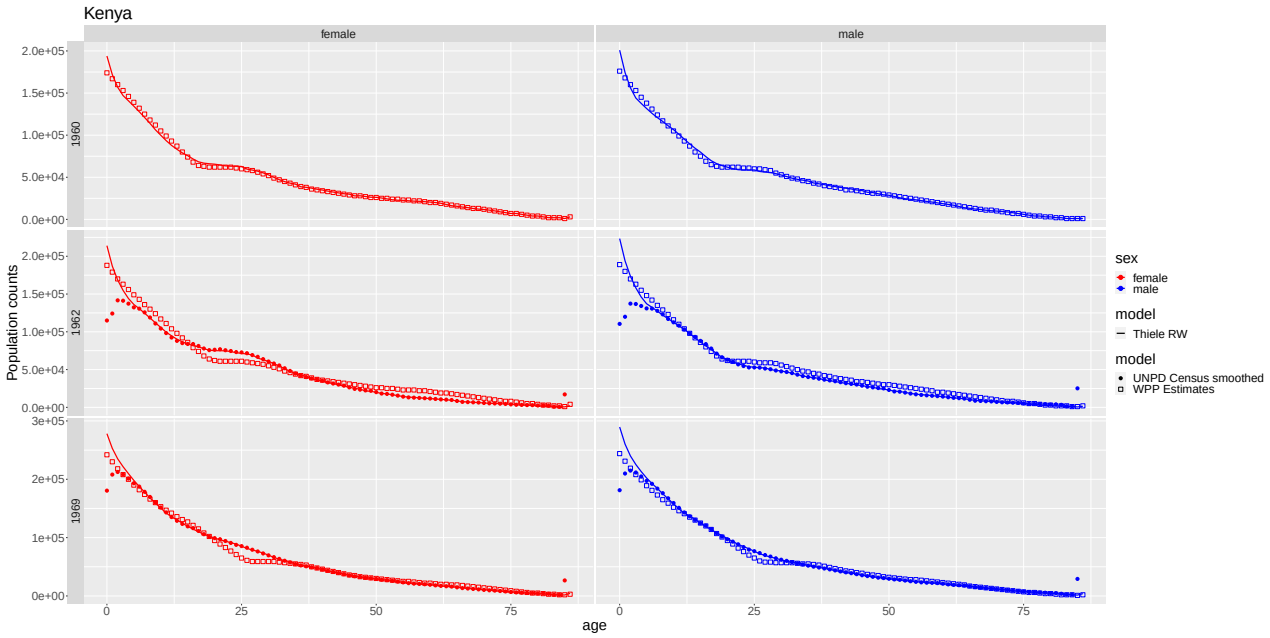

Figure 9: Population

Figure 10: Population

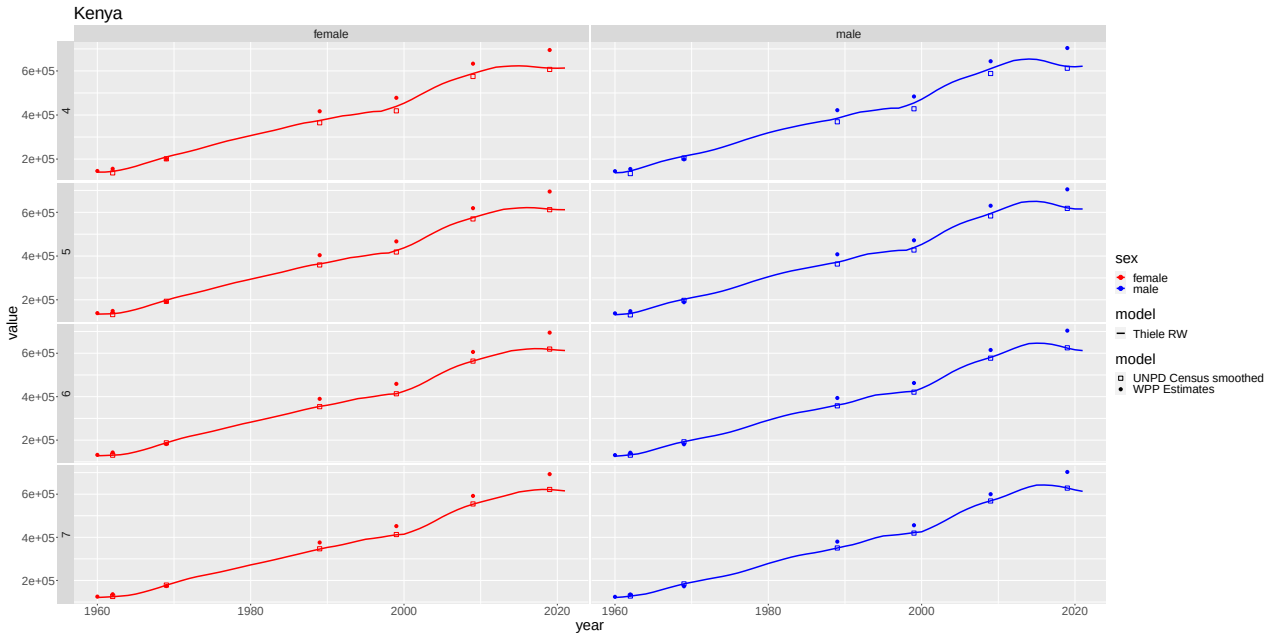

Figure 11: Population

Figure 12: Population

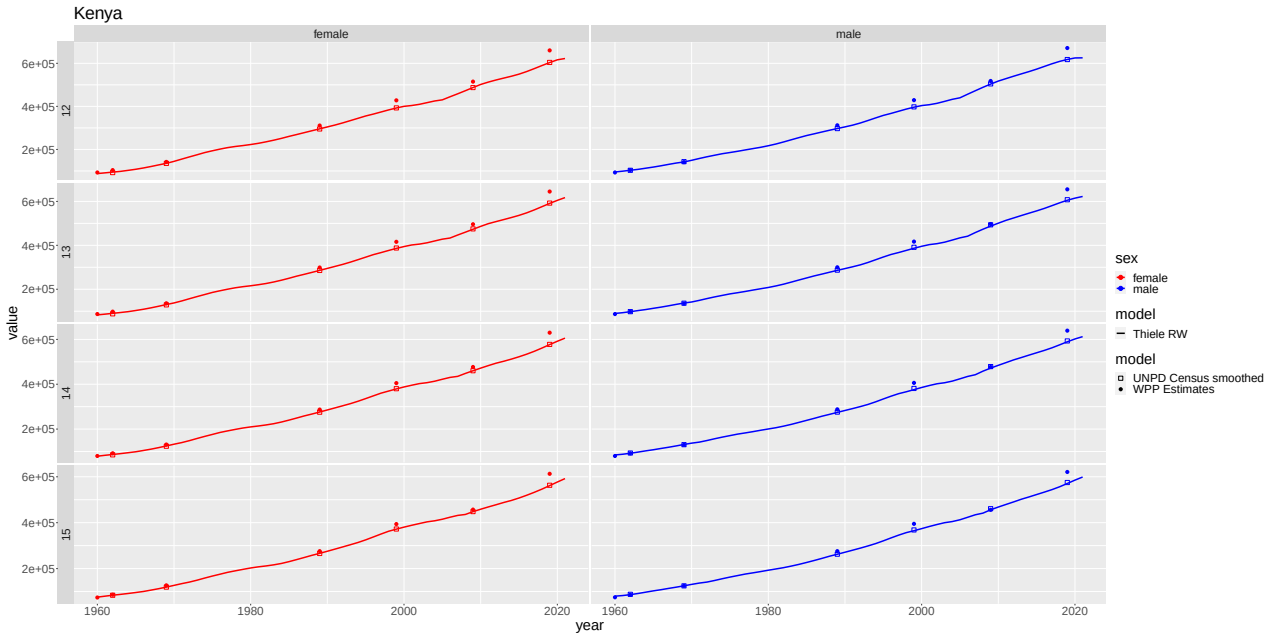

Figure 13: Population

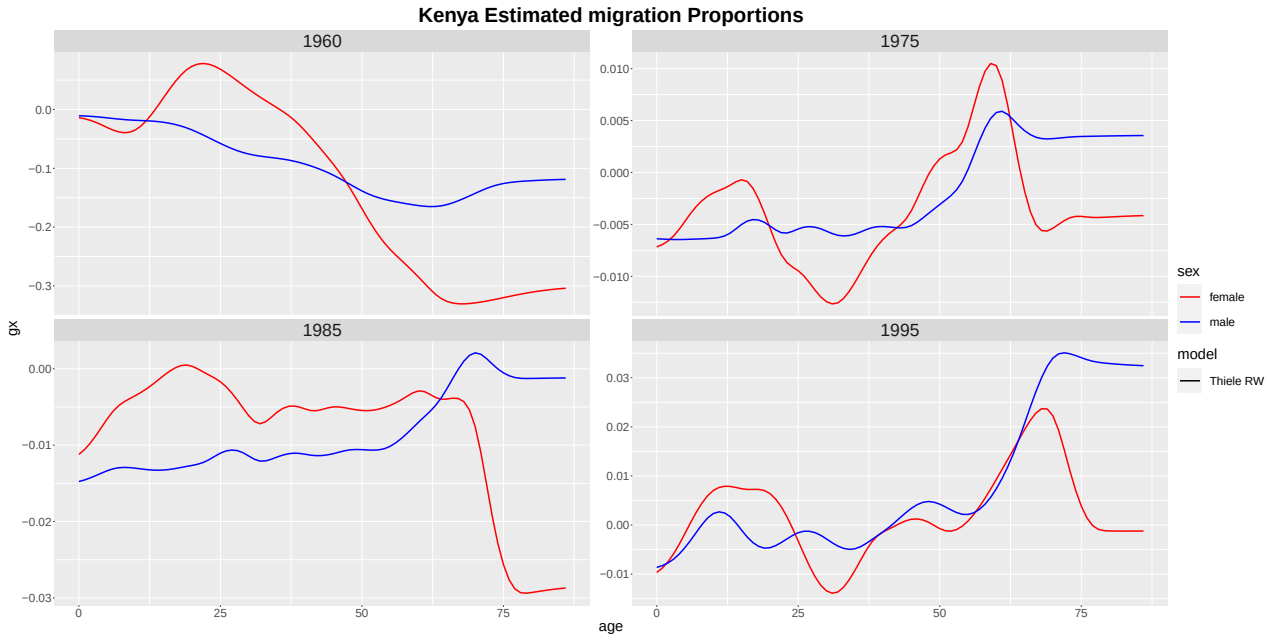

Figure 14: Migration

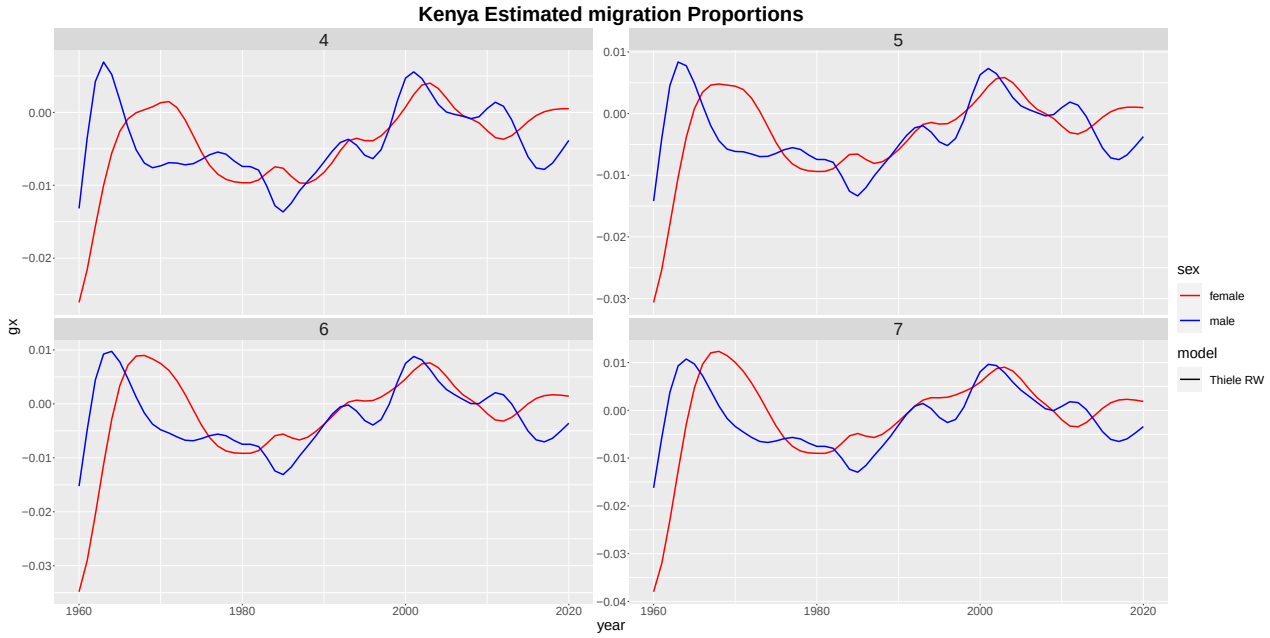

Figure 15: Migration

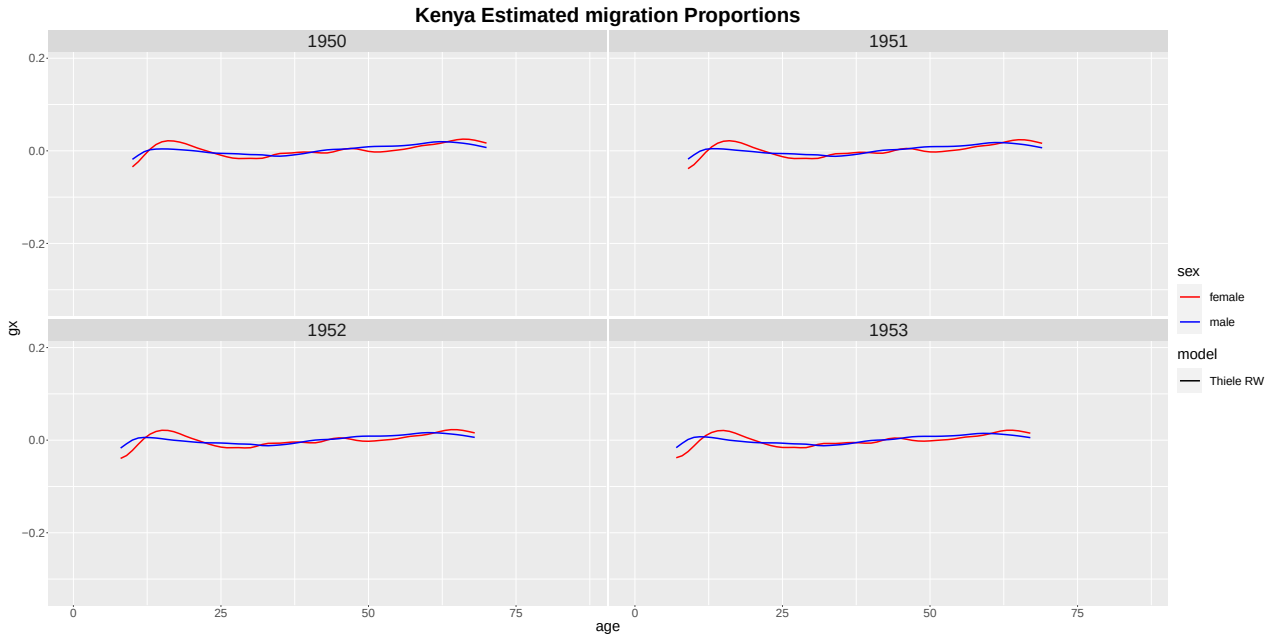

Figure 16: Migration

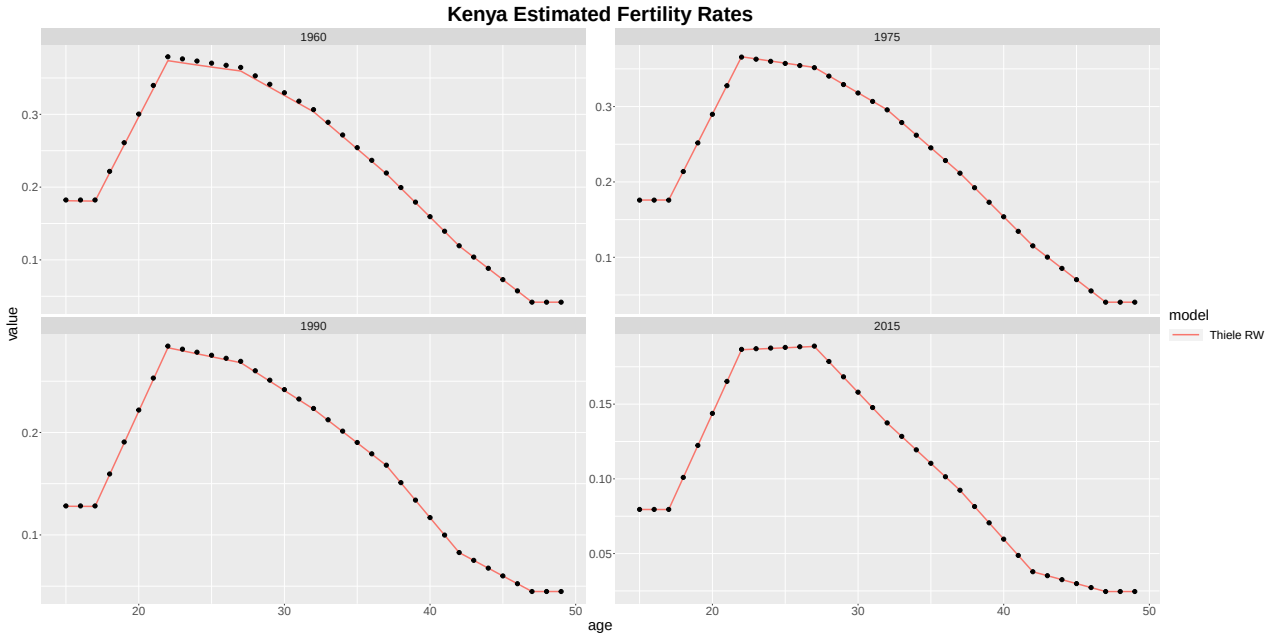

Figure 17: Fertility

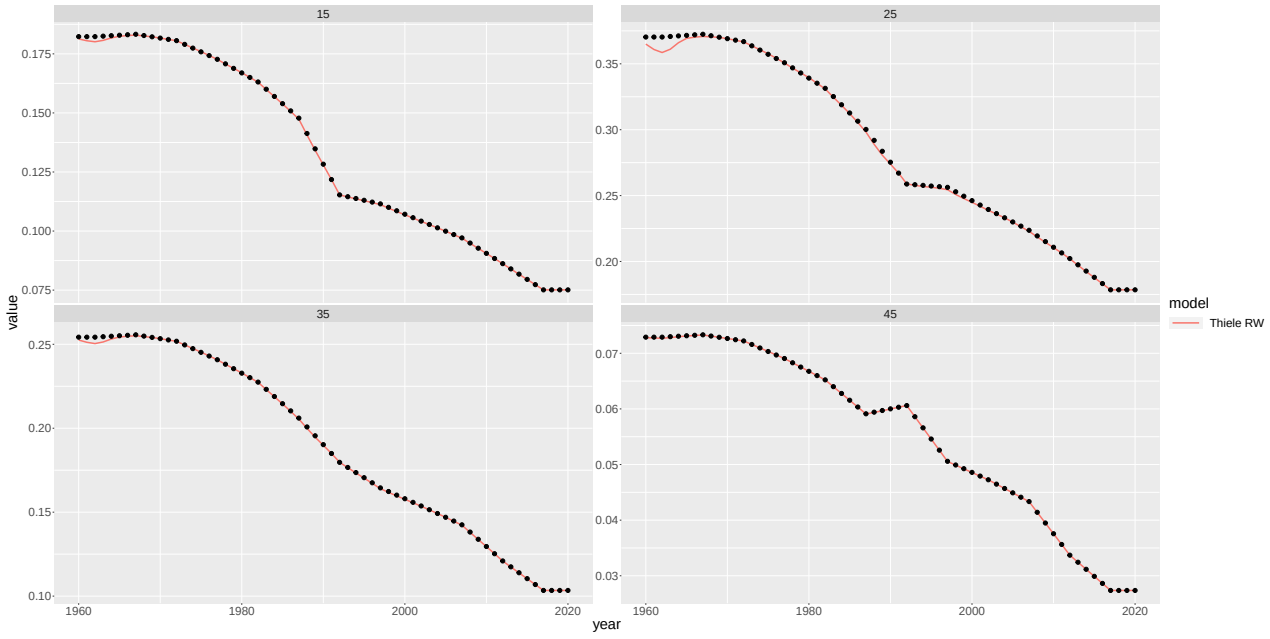

Figure 18: Fertility

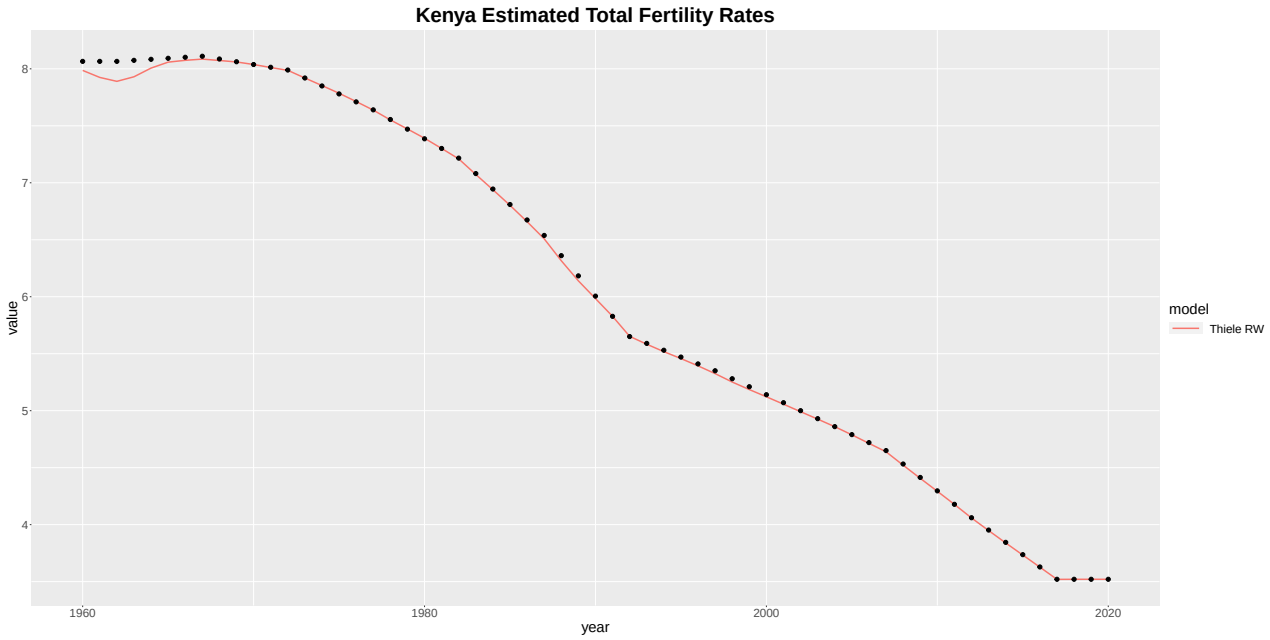

Figure 19: Total Fertility