Uganda

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

```
## # A tibble: 87 x 5
##      age  `1969`  `1991`  `2002`  `2014`
##    <dbl>   <dbl>   <dbl>   <dbl>   <dbl>
##  1     0 139428. 340153. 502401  586516
##  2     1 186993. 308159. 447336. 574071.
##  3     2 191510. 314681. 450246. 591449
##  4     3 184954. 306938. 443735. 585116.
##  5     4 175554. 293838. 434040. 577436.
##  6     5 166136. 281202. 422135. 564868.
##  7     6 159872. 272059. 411856. 555842.
##  8     7 149787. 262526. 403989. 544848.
##  9     8 140339. 252475. 394285. 532237.
## 10     9 130510. 240843. 381523. 520822.
## # ... with 77 more rows
```

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

```
## # A tibble: 87 x 5
##      age  `1969`  `1991`  `2002`  `2014`
##    <dbl>   <dbl>   <dbl>   <dbl>   <dbl>
##  1     0 135287. 334426. 505006  636238
##  2     1 183048. 306161. 449339. 621512.
##  3     2 187557. 310898. 450300. 634773.
##  4     3 182062. 303750. 443917. 625634.
##  5     4 173214. 290298. 433722. 613309
##  6     5 164818. 278369. 421581. 596926.
##  7     6 159573. 270091. 411228. 584412.
##  8     7 150962. 261321. 403457. 568588.
##  9     8 143307. 252588. 393812. 551068.
## 10     9 135006. 242560. 381280. 535249.
## # ... 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_
##                   6.6258401                   5.2603283                   6.7083185                   5
##               log_tau2_gx_m         log_lambda_gx_age_f         log_lambda_gx_age_m        log_lambda_g
##                   3.4314178                   7.1074285                   7.4602542                   7
##     log_lambda_gx_agetime_m               log_lambda_tp log_lambda_tp_0_inflated_sd           log_dispe
##                   6.9078673                   2.4998065                  -1.8186385                   0
##     log_marginal_prec_psi_f       log_marginal_prec_A_f       log_marginal_prec_B_f     log_marginal_pre
##                   4.3254169                   6.8023884                   6.8166453                   4
##       log_marginal_prec_B_m            log_lambda_phi_f            log_lambda_psi_f         log_lambda_
##                  -0.3009612                   4.4084507                   4.3575724                   2
##              log_lambda_A_f              log_lambda_B_f            log_lambda_phi_m           log_lambd
##                   4.3071856                   4.3026411                   4.4353945                   4
##        log_lambda_epsilon_m              log_lambda_A_m              log_lambda_B_m
##                   4.0168617                   4.3068458                   1.8571033
```

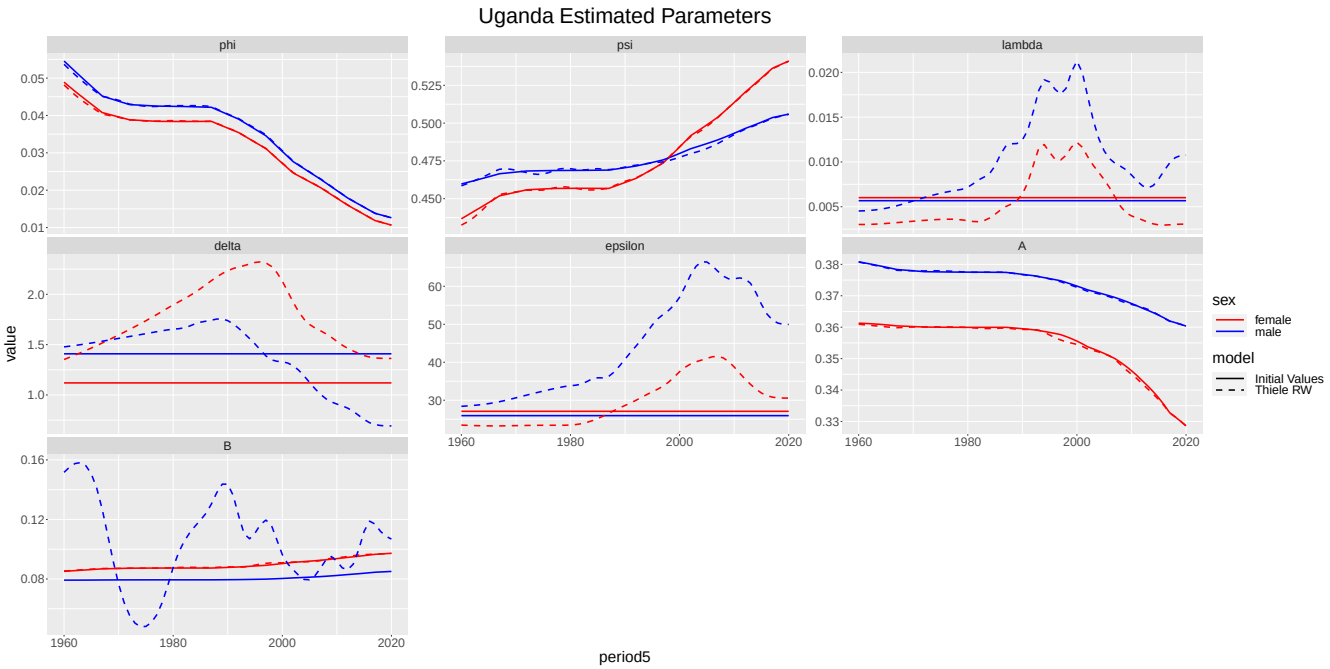

Figure 1: Estimated parameters

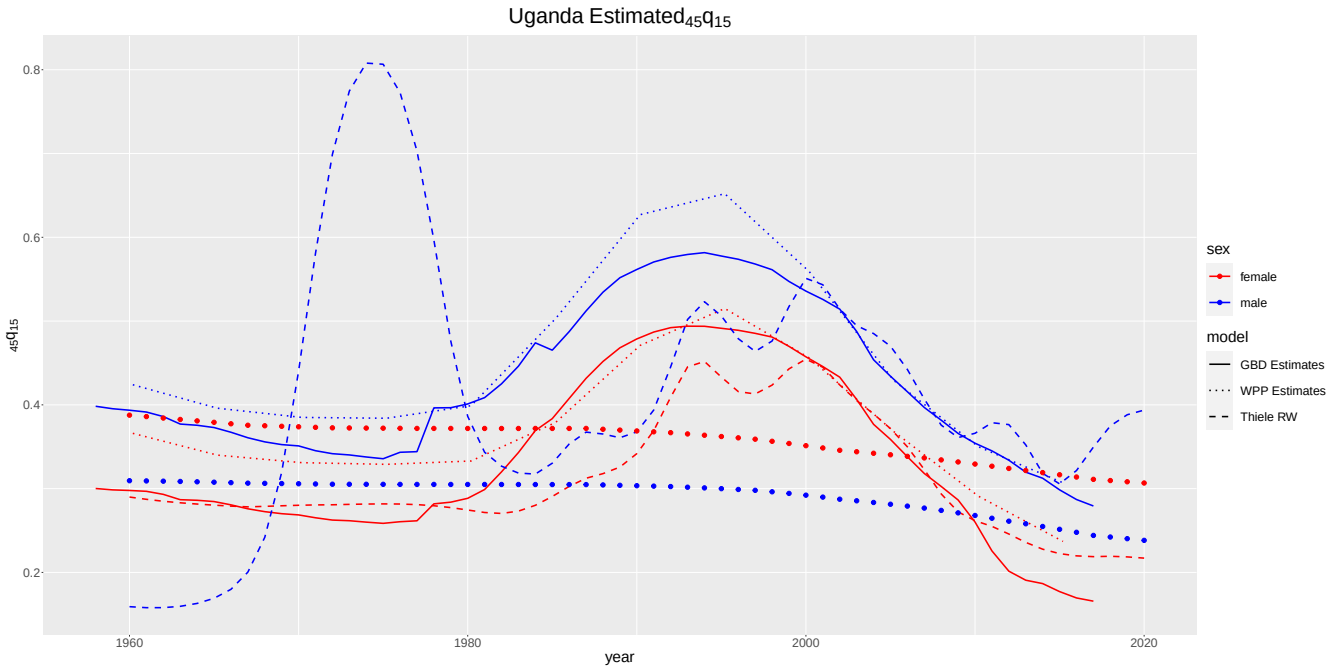

Figure 2: Estimated $_{45}q_{15}$

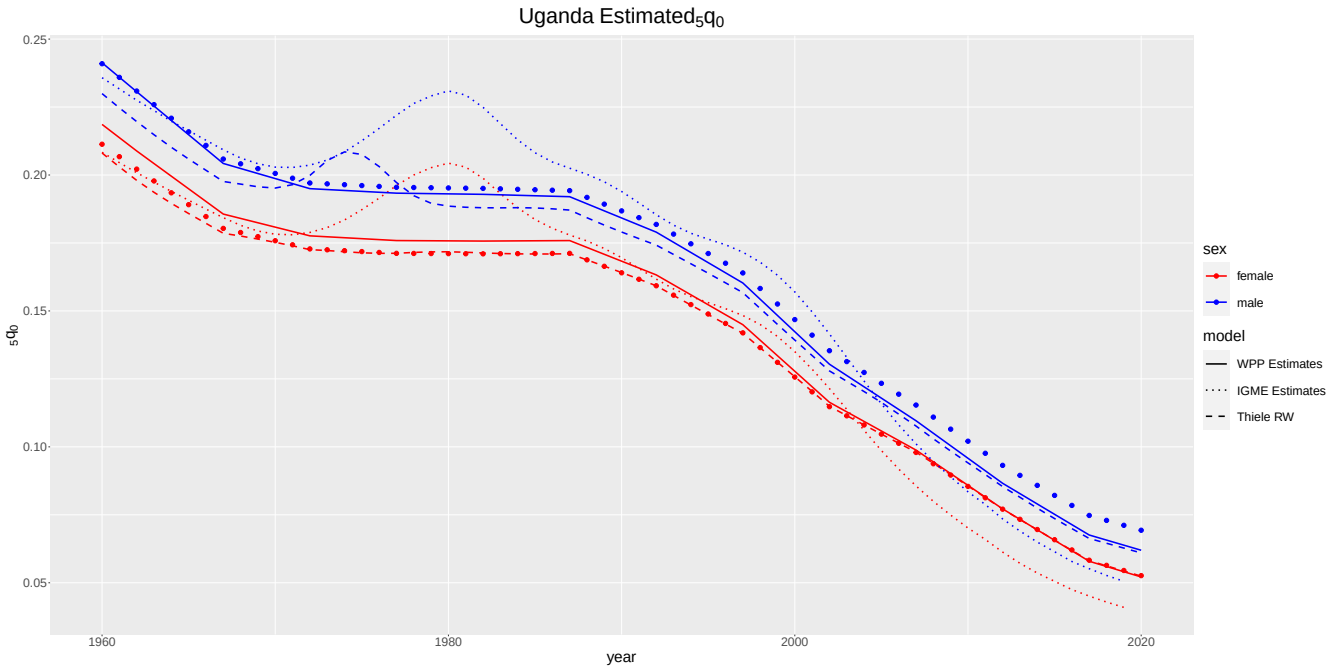

Figure 3: Estimated $_5q_0$

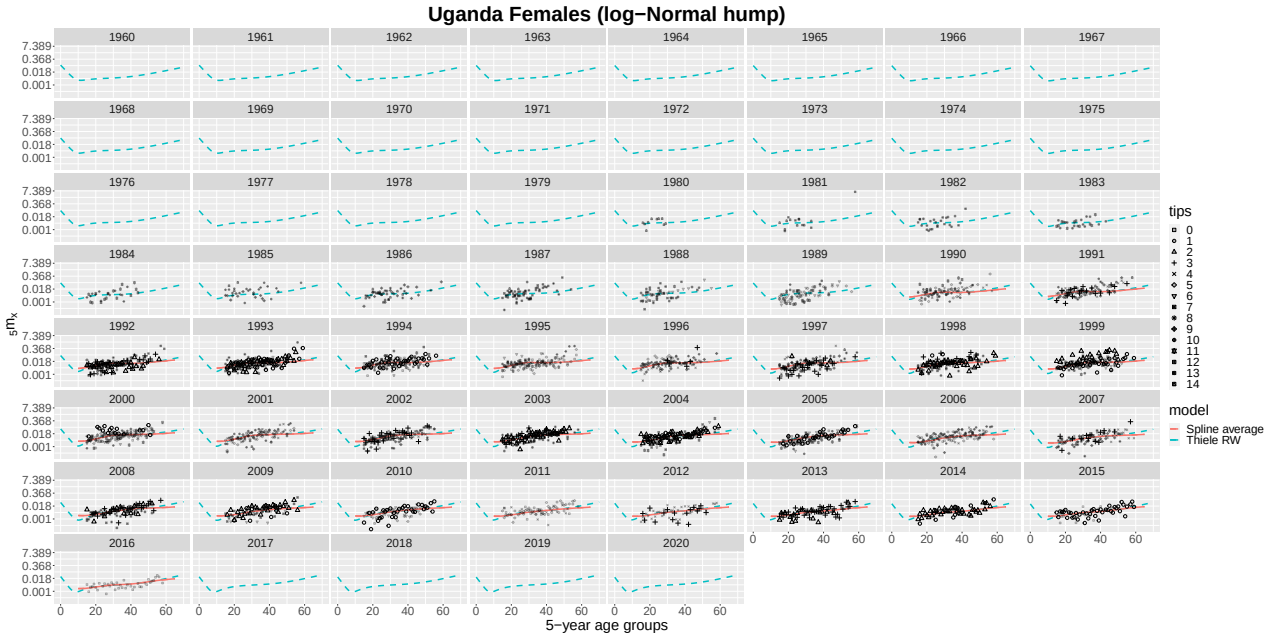

Figure 4: Mortality Schedules

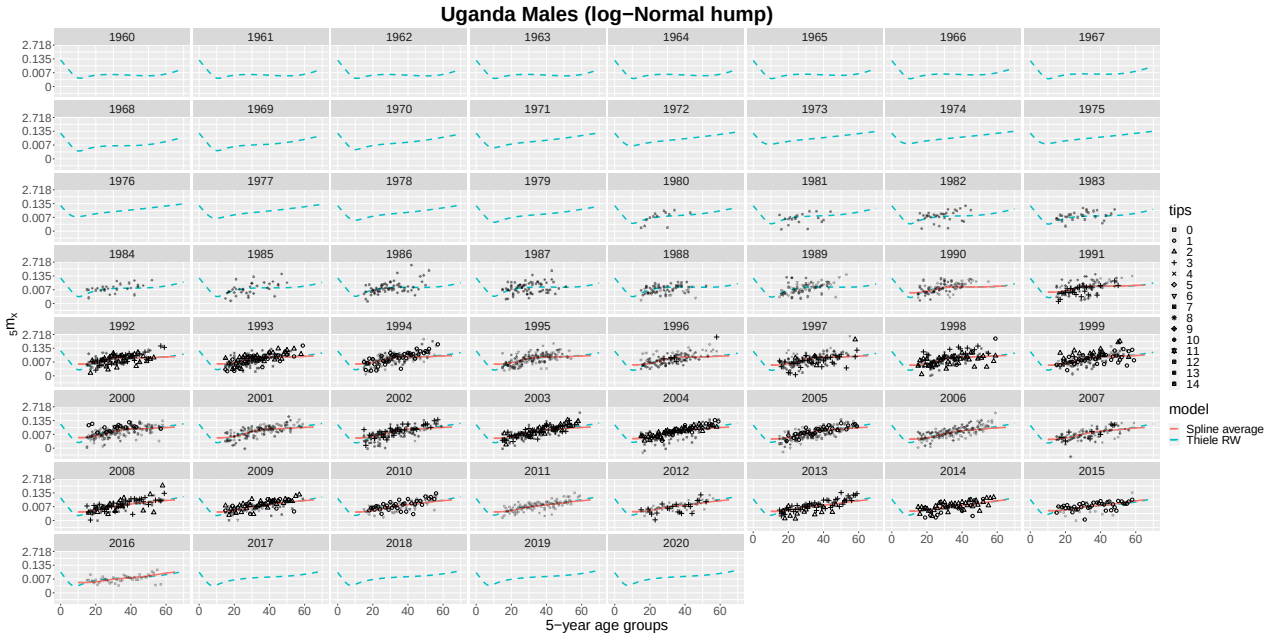

Figure 5: Mortality Schedules

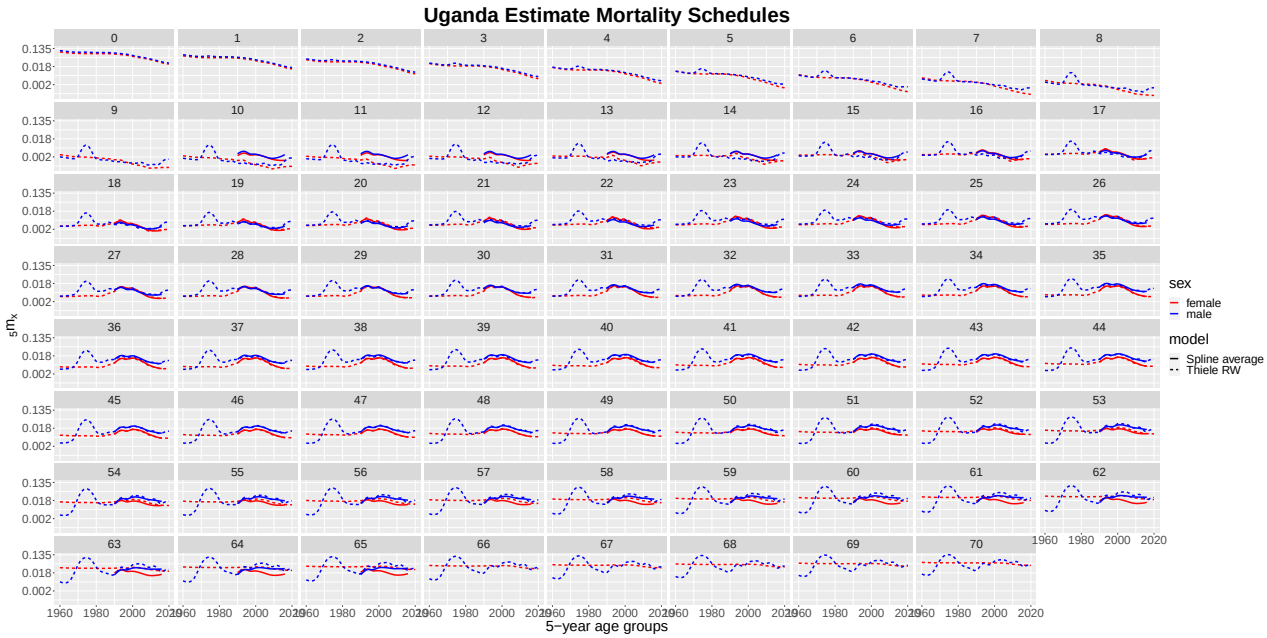

Figure 6: Mortality Schedules

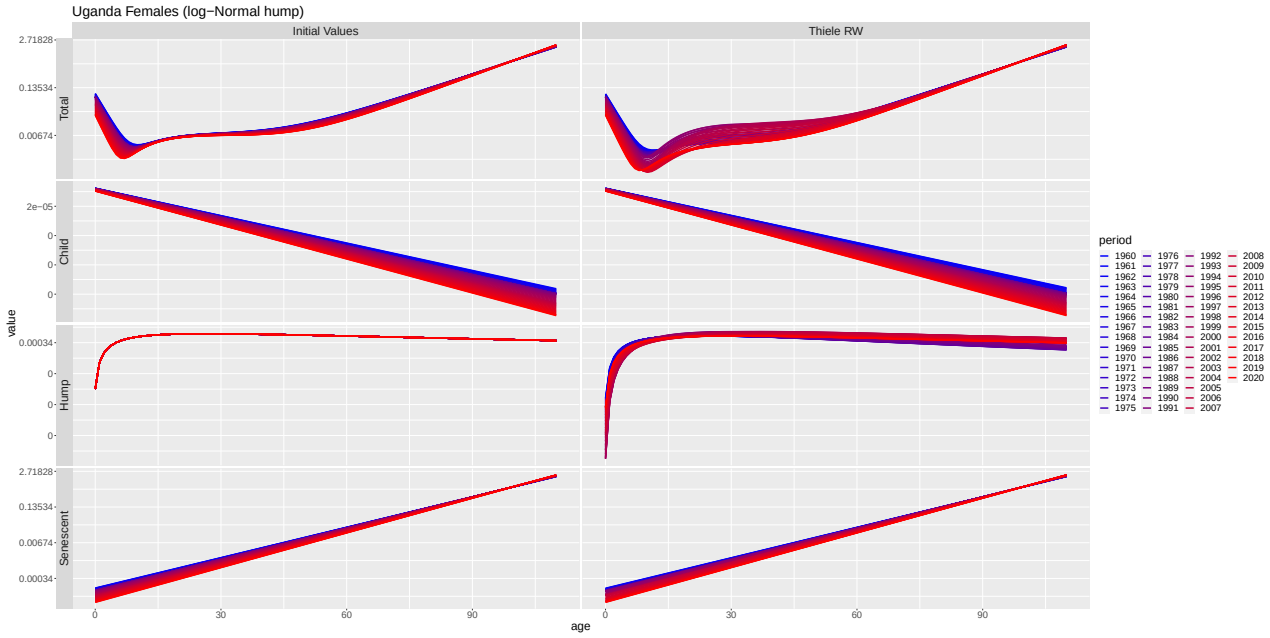

Figure 7: Thiele Decomposed

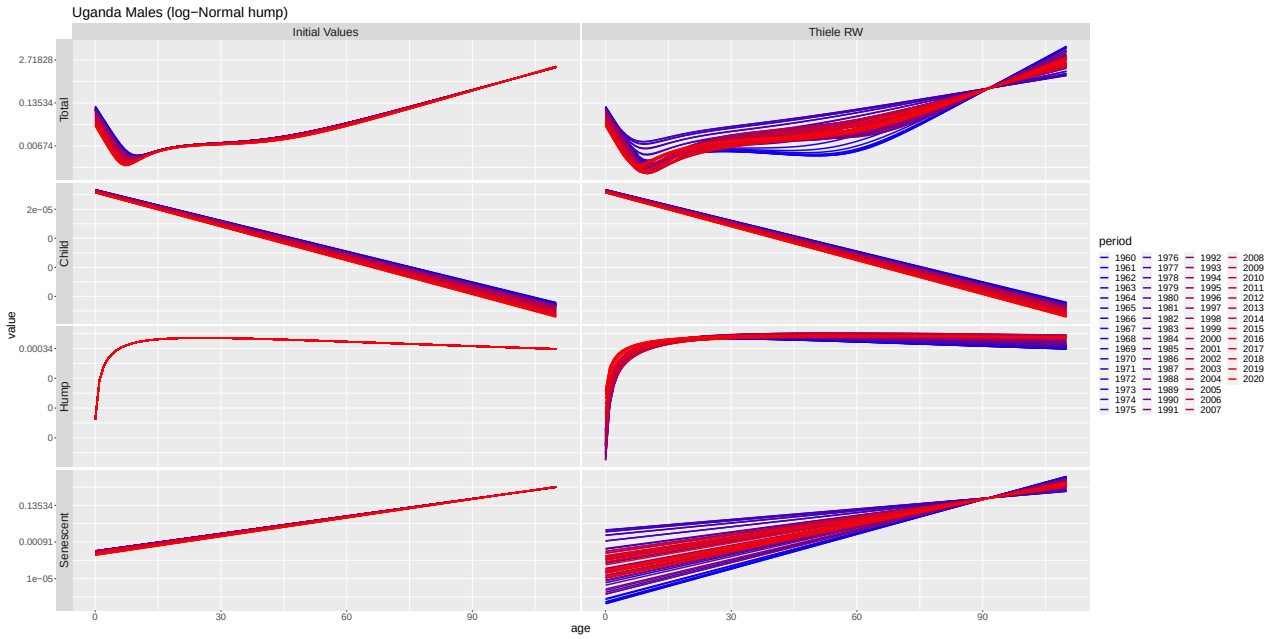

Figure 8: Thiele Decomposed

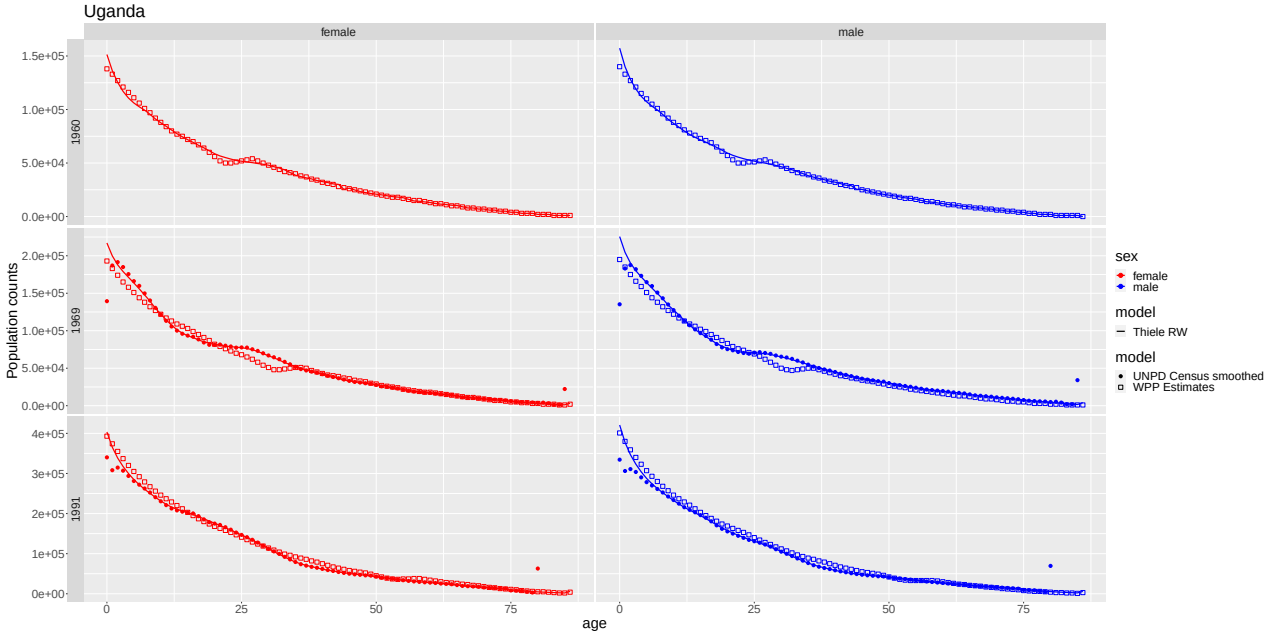

Figure 9: Population

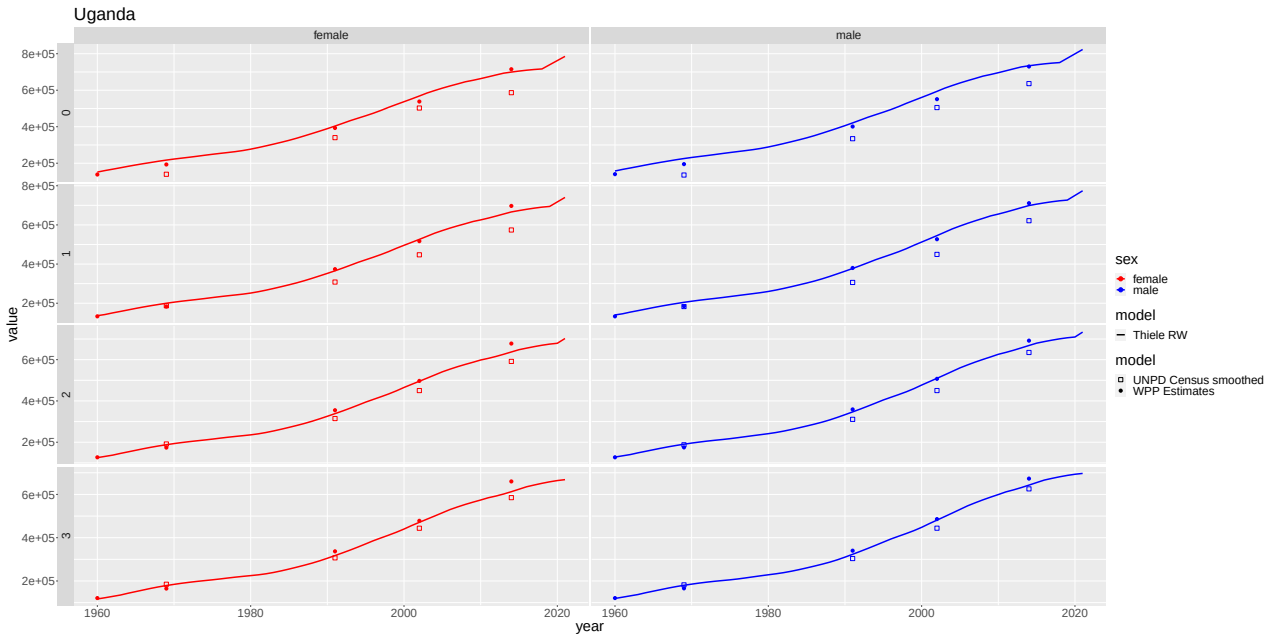

Figure 10: Population

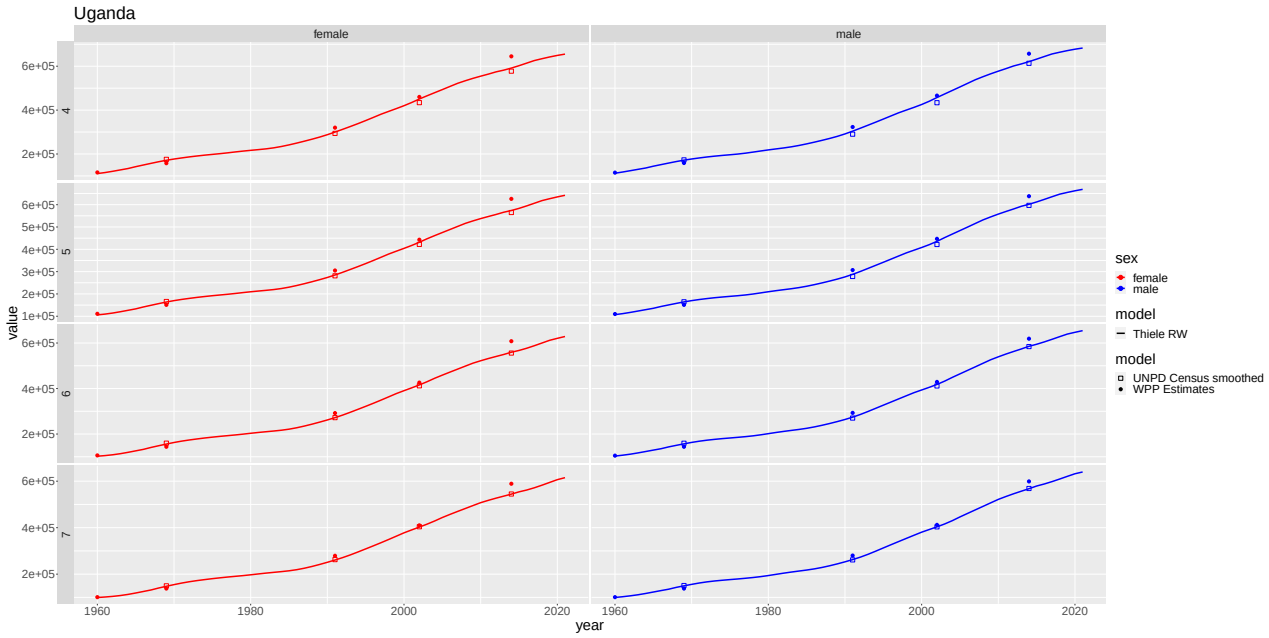

Figure 11: Population

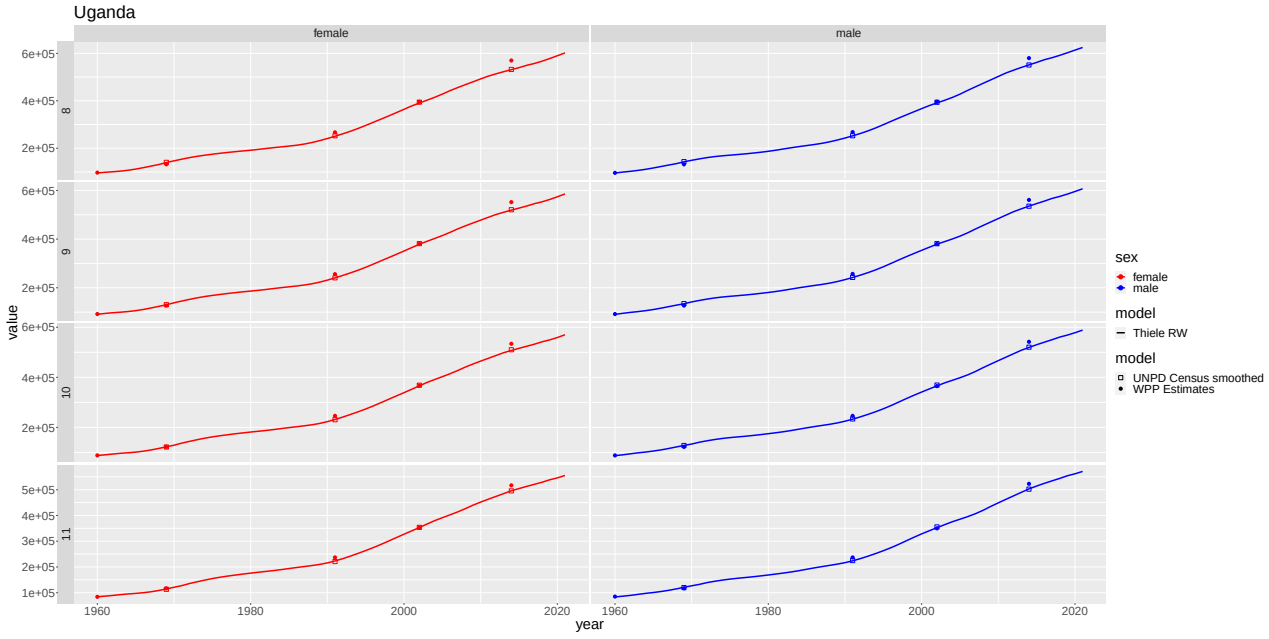

Figure 12: Population

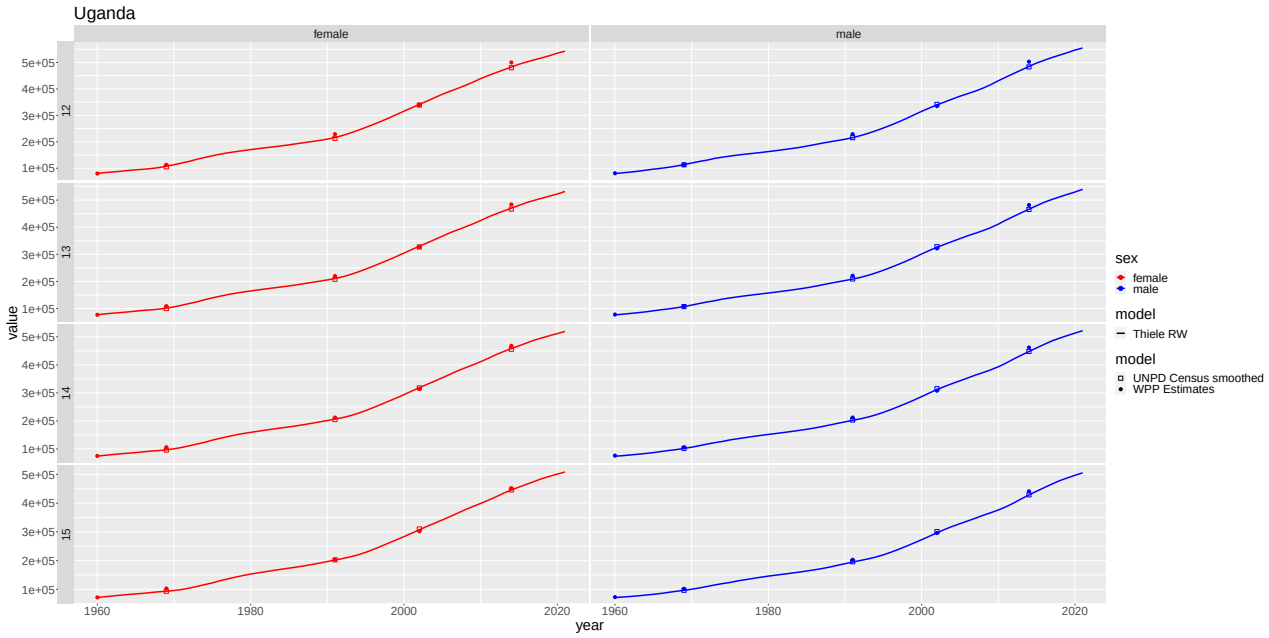

Figure 13: Population

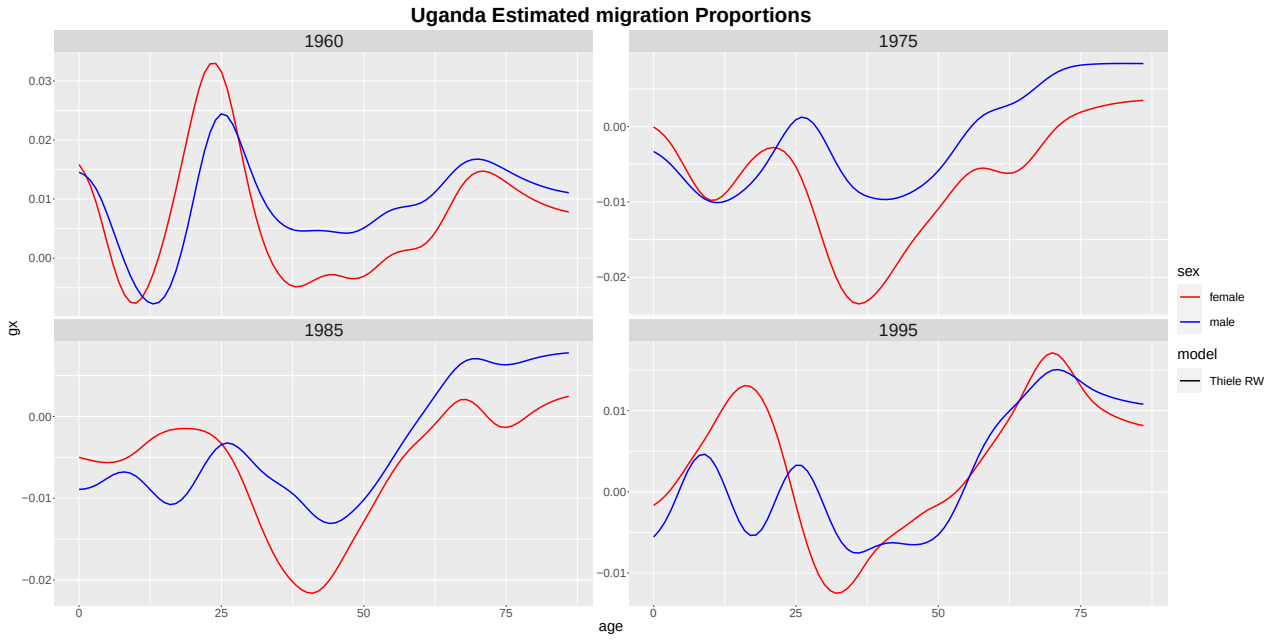

Figure 14: Migration

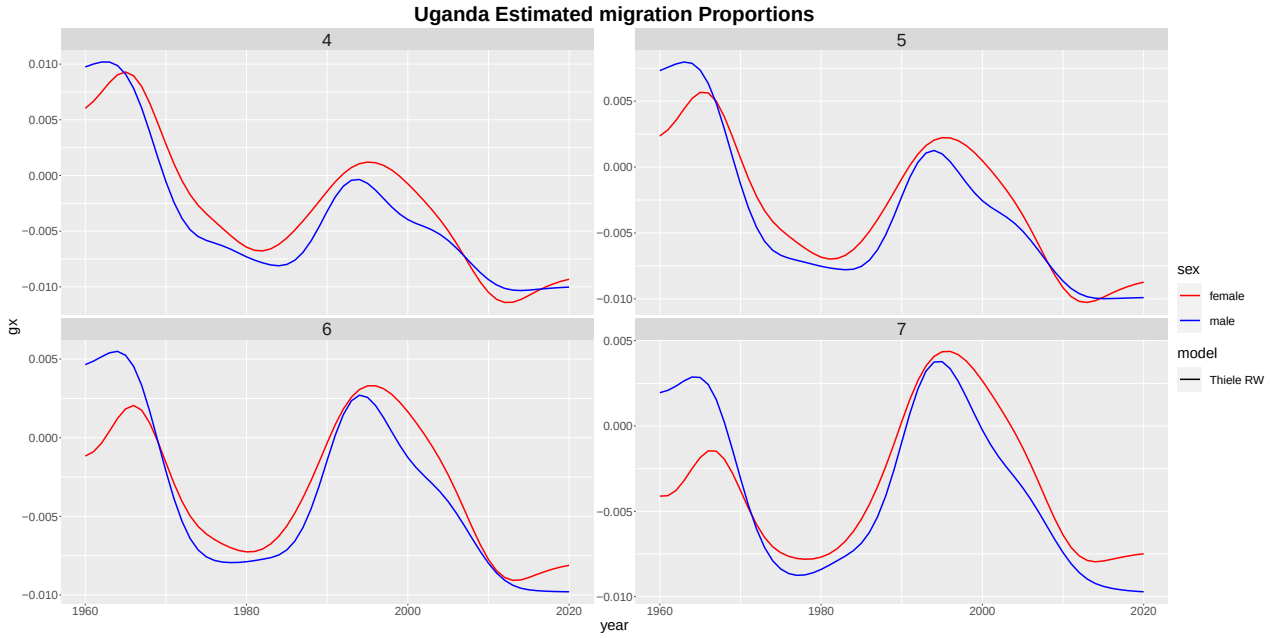

Figure 15: Migration

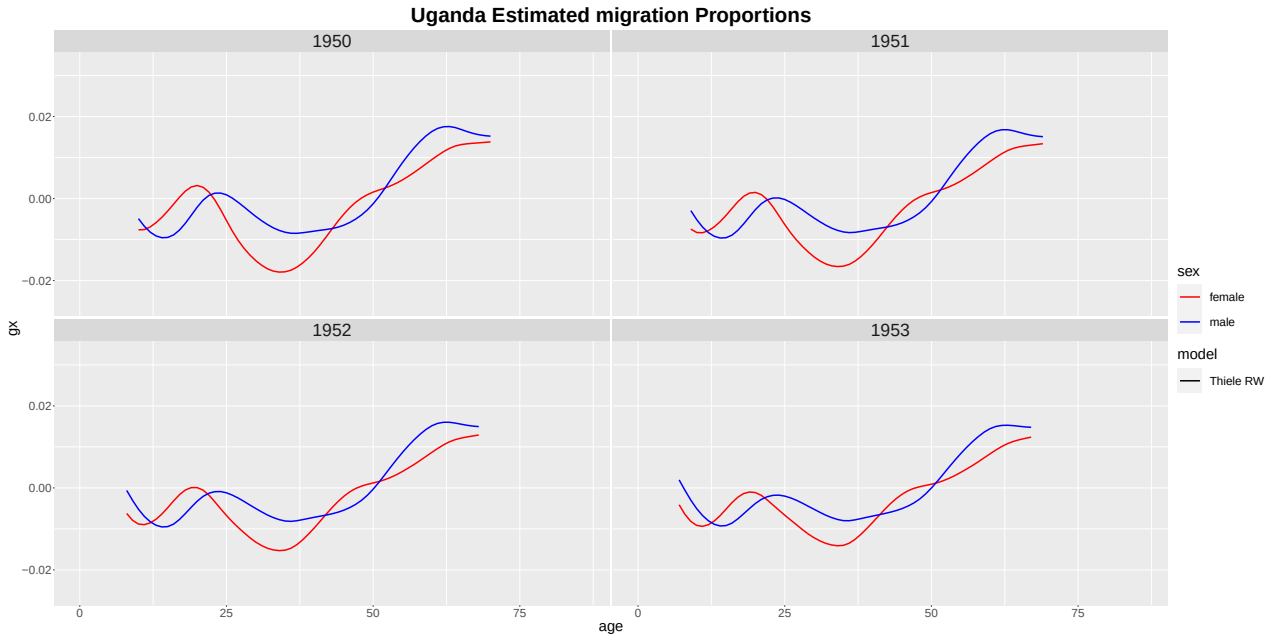

Figure 16: Migration

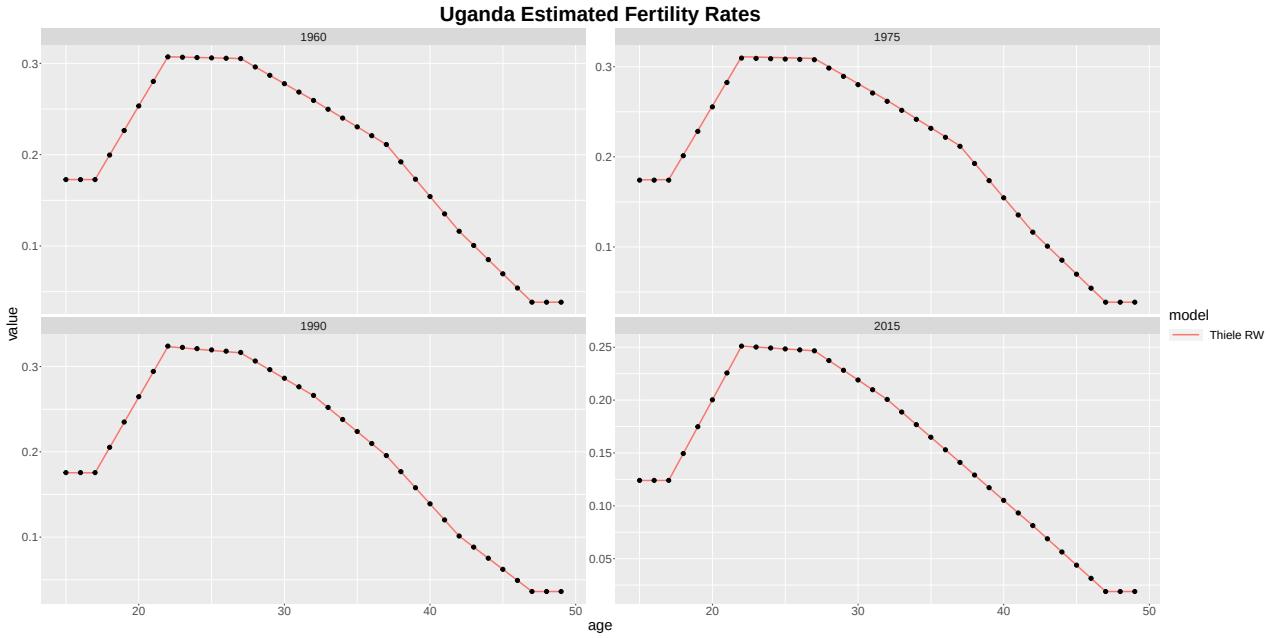

Figure 17: Fertility

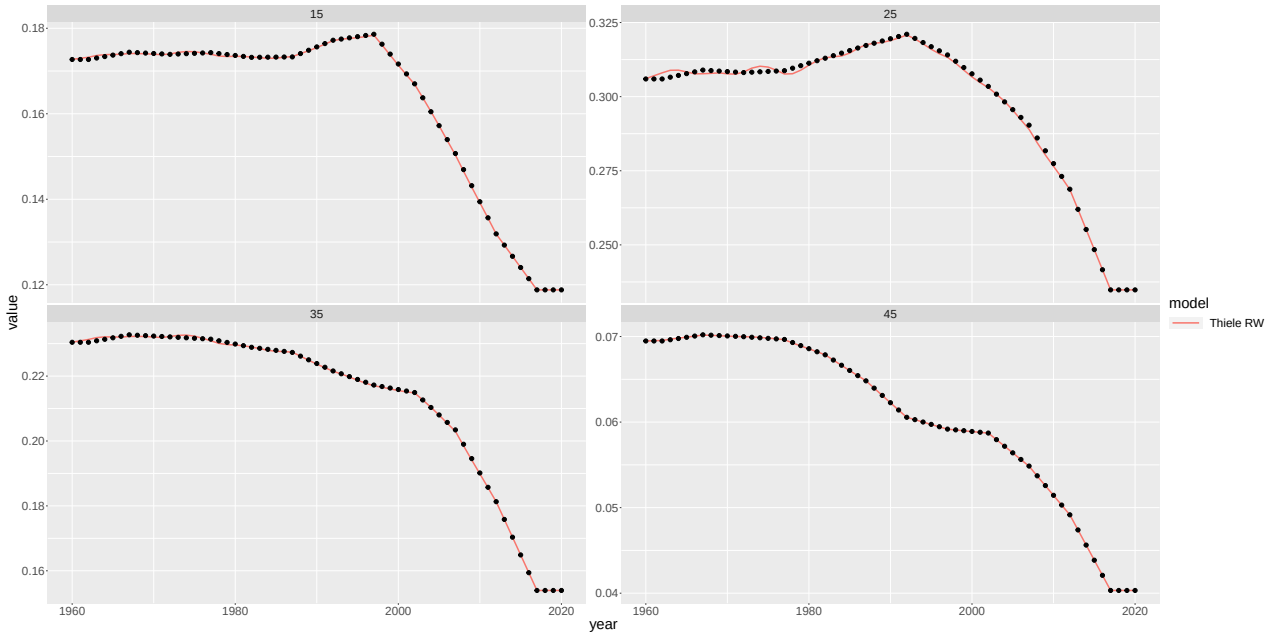

Figure 18: Fertility

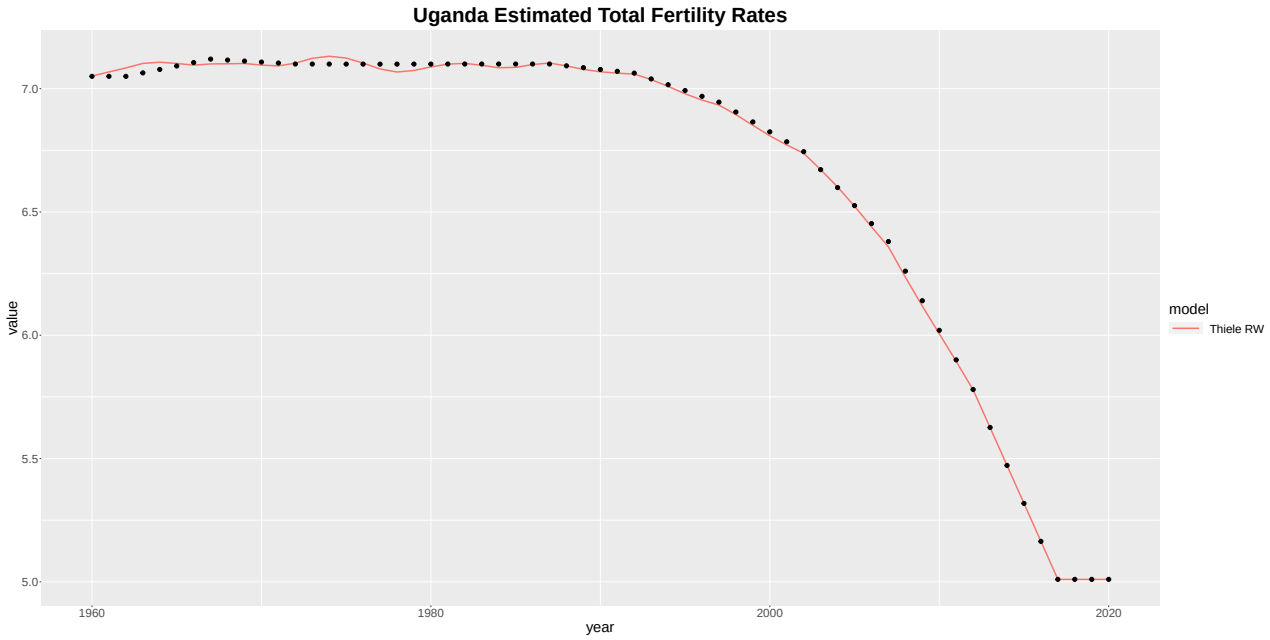

Figure 19: Total Fertility