

Nigeria

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

## # A tibble: 86 x 3
##   age `1963` `1991`
##   <dbl> <dbl> <dbl>
## 1     0 982563. 1405526.
## 2     1 997276. 1411166.
## 3     2 989920. 1408346.
## 4     3 960492. 1397067.
## 5     4 908994. 1377329.
## 6     5 850237. 1367881.
## 7     6 806193. 1364073.
## 8     7 773039. 1344829.
## 9     8 750773. 1310149.
## 10    9 739397. 1260034.
## # ... with 76 more rows
```

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

## # A tibble: 86 x 3
##   age `1963` `1991`
##   <dbl> <dbl> <dbl>
## 1     0 950597. 1474780.
## 2     1 959210. 1480668.
## 3     2 954904. 1477724.
## 4     3 937677. 1465946.
## 5     4 907530. 1445336.
## 6     5 879320. 1436346.
## 7     6 859723. 1433245.
## 8     7 837222. 1412713.
## 9     8 811815. 1374748.
## 10    9 783503. 1319352.
## # ... with 76 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_
##	5.8090051	5.4613500	5.8440649	5
##	log_tau2_gx_m	log_lambda_gx_age_f	log_lambda_gx_age_m	log_lambda_g
##	1.7847067	4.7903509	5.5449126	3
##	log_lambda_gx_agemtime_m	log_lambda_tp	log_lambda_tp_0_inflated_sd	log_disp
##	6.9077834	1.3198624	-0.9656411	0
##	log_marginal_prec_psi_f	log_marginal_prec_A_f	log_marginal_prec_B_f	log_marginal_pr
##	4.2910104	6.7918516	5.5021592	4
##	log_marginal_prec_B_m	log_lambda_phi_f	log_lambda_psi_f	log_lambda_
##	3.4163604	4.3286314	4.3110574	3
##	log_lambda_A_f	log_lambda_B_f	log_lambda_phi_m	log_lamb
##	4.3089178	4.4694833	4.3334176	4
##	log_lambda_epsilon_m	log_lambda_A_m	log_lambda_B_m	
##	4.5573127	4.3067250	4.4405267	

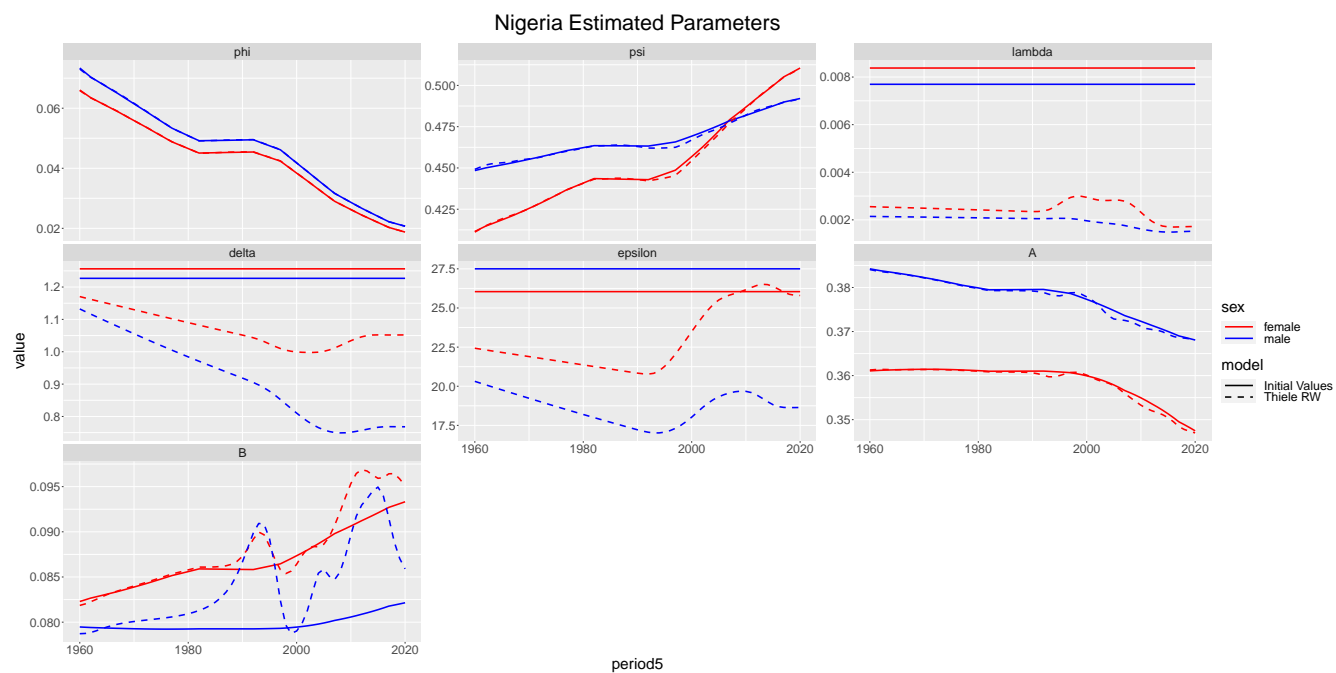


Figure 1: Estimated parameters

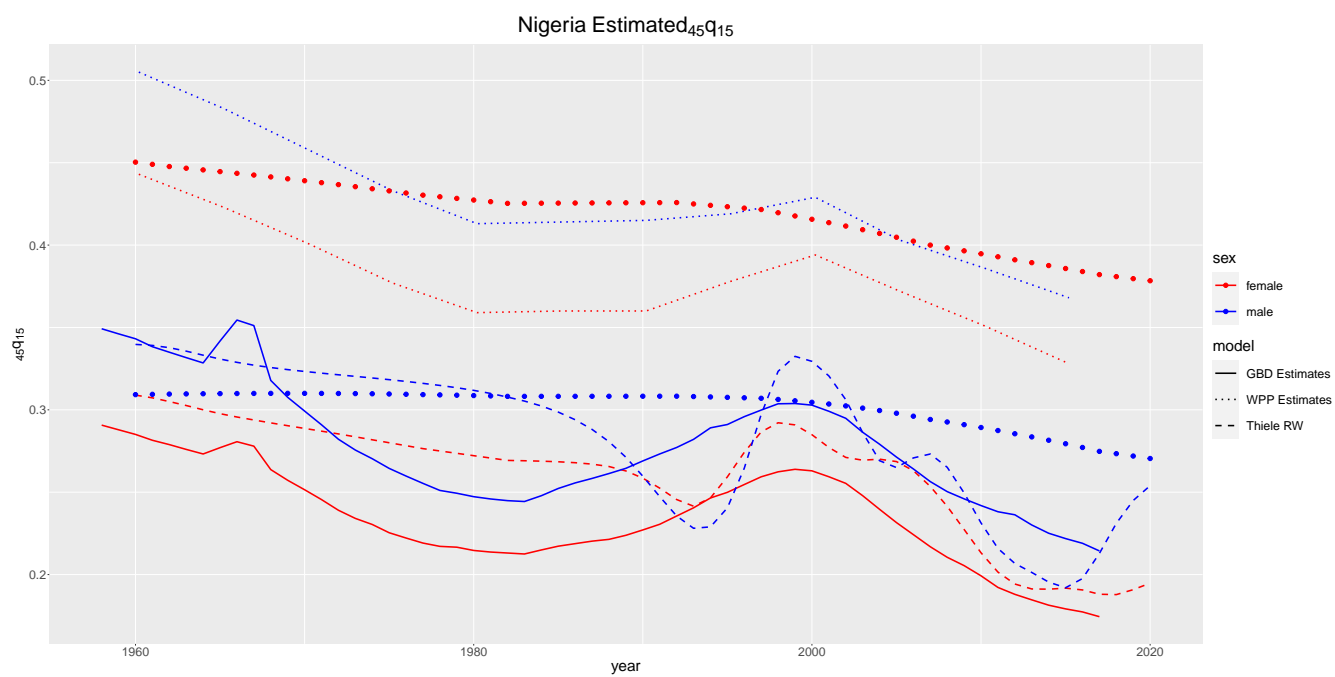


Figure 2: Estimated $_{45}q_{15}$

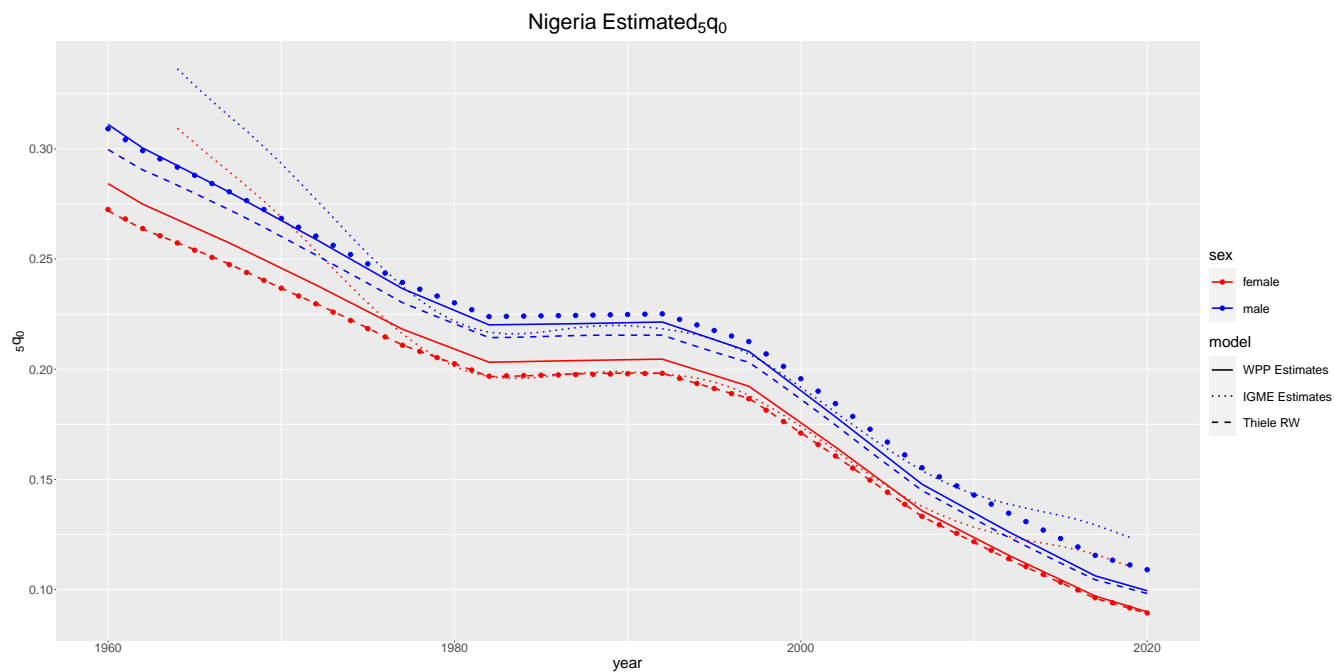


Figure 3: Estimated ${}_5q_0$

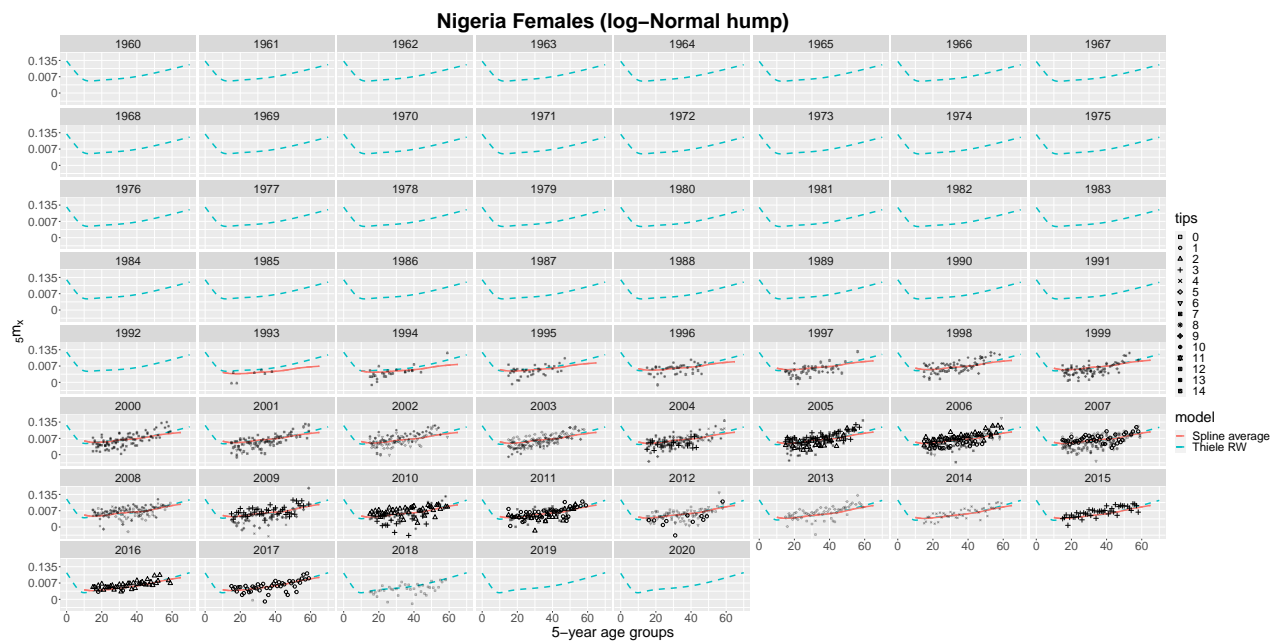


Figure 4: Mortality Schedules

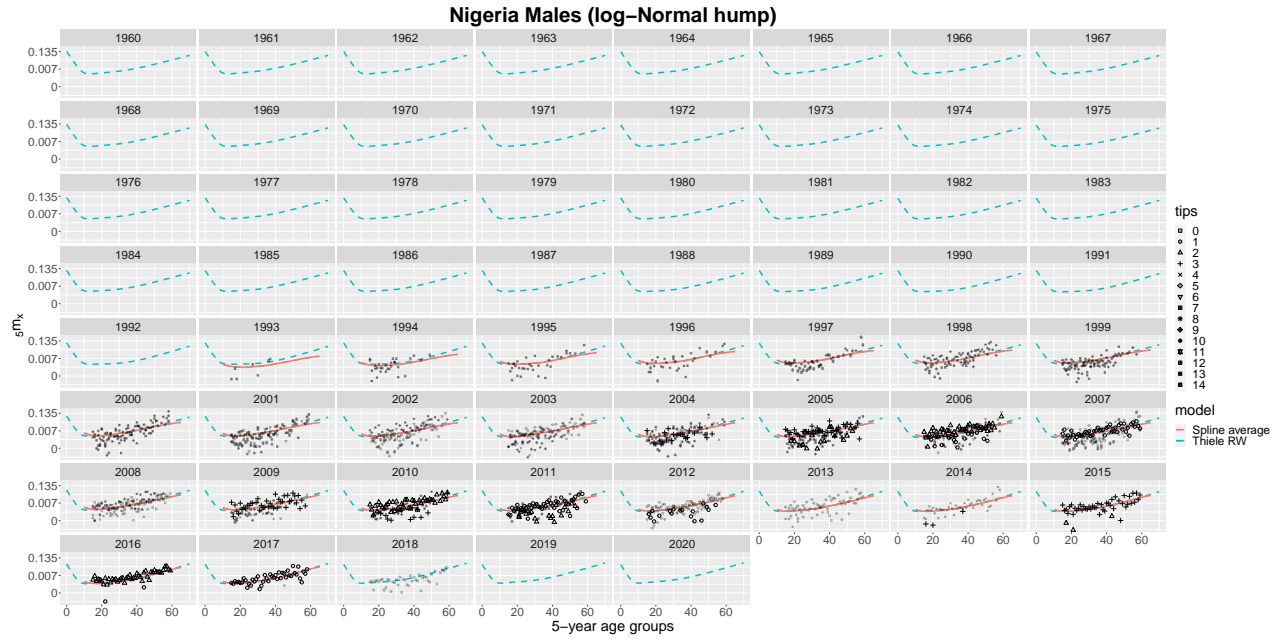


Figure 5: Mortality Schedules

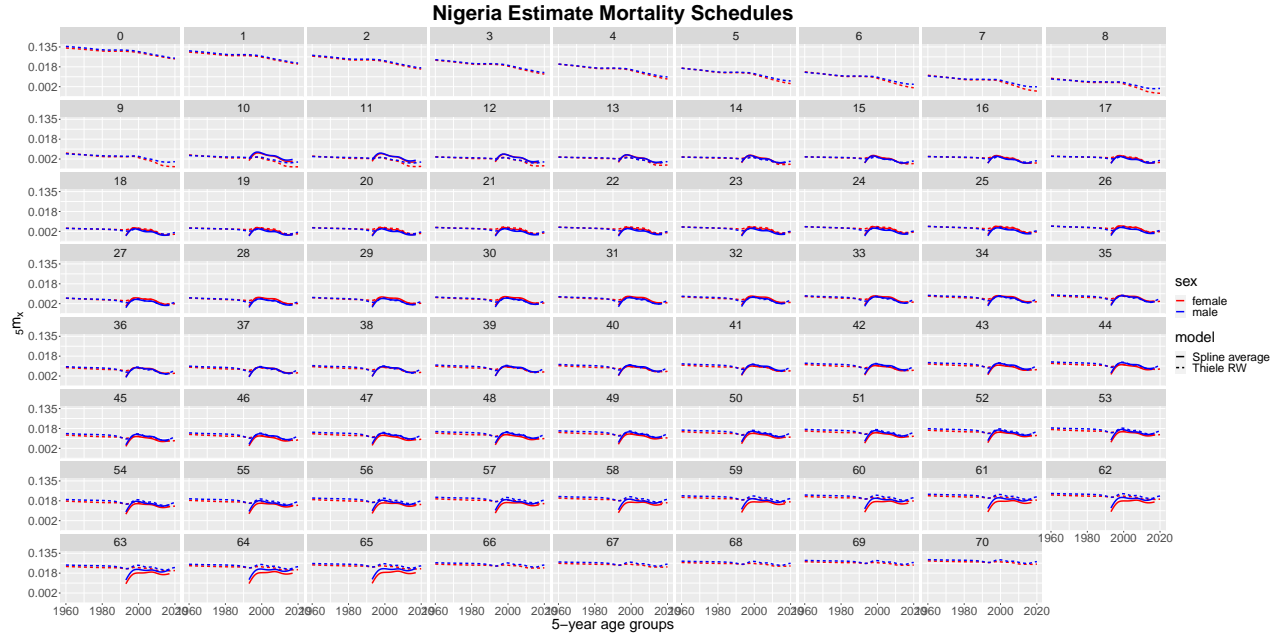


Figure 6: Mortality Schedules

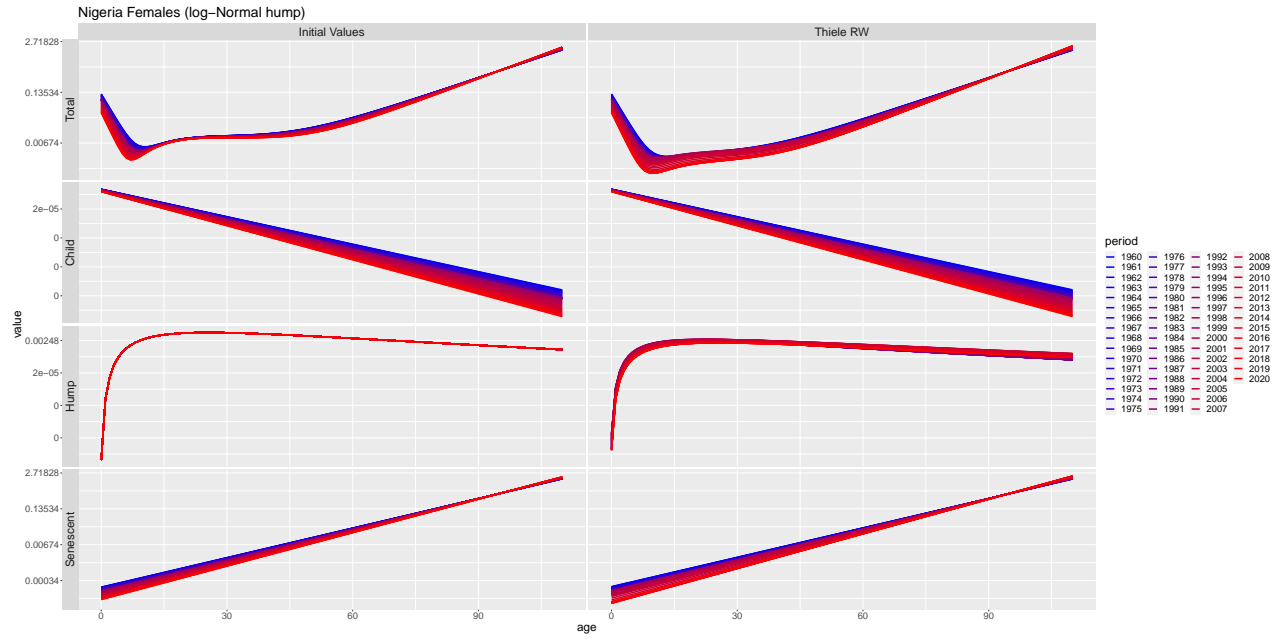


Figure 7: Thiele Decomposed

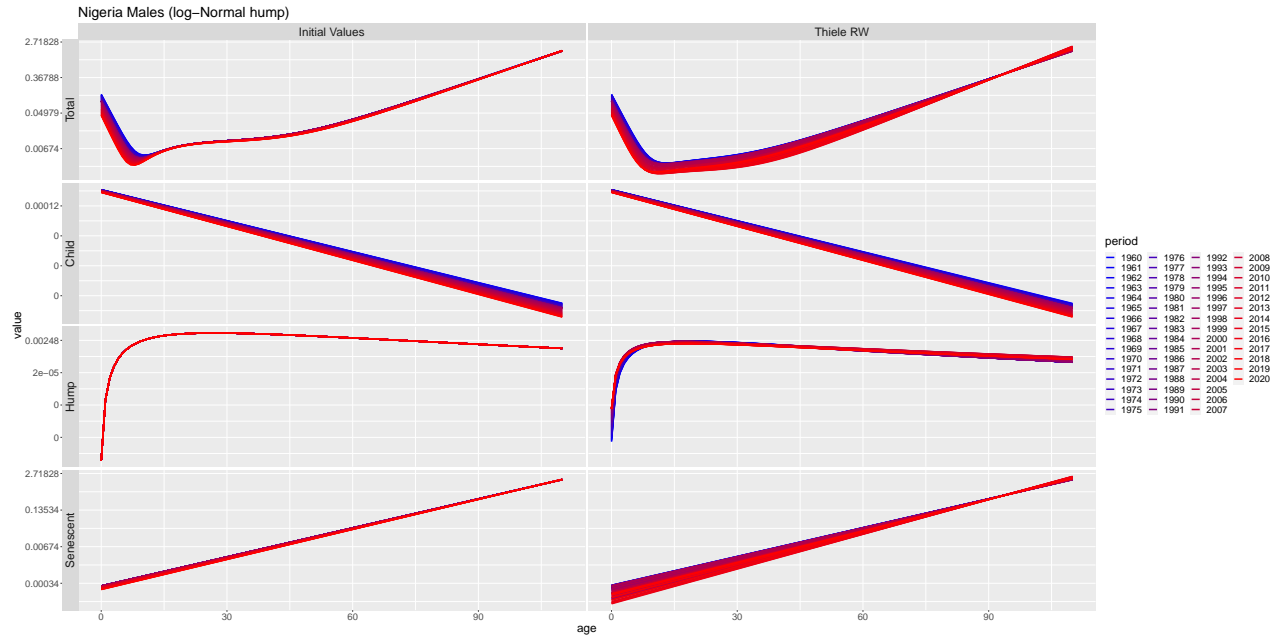


Figure 8: Thiele Decomposed

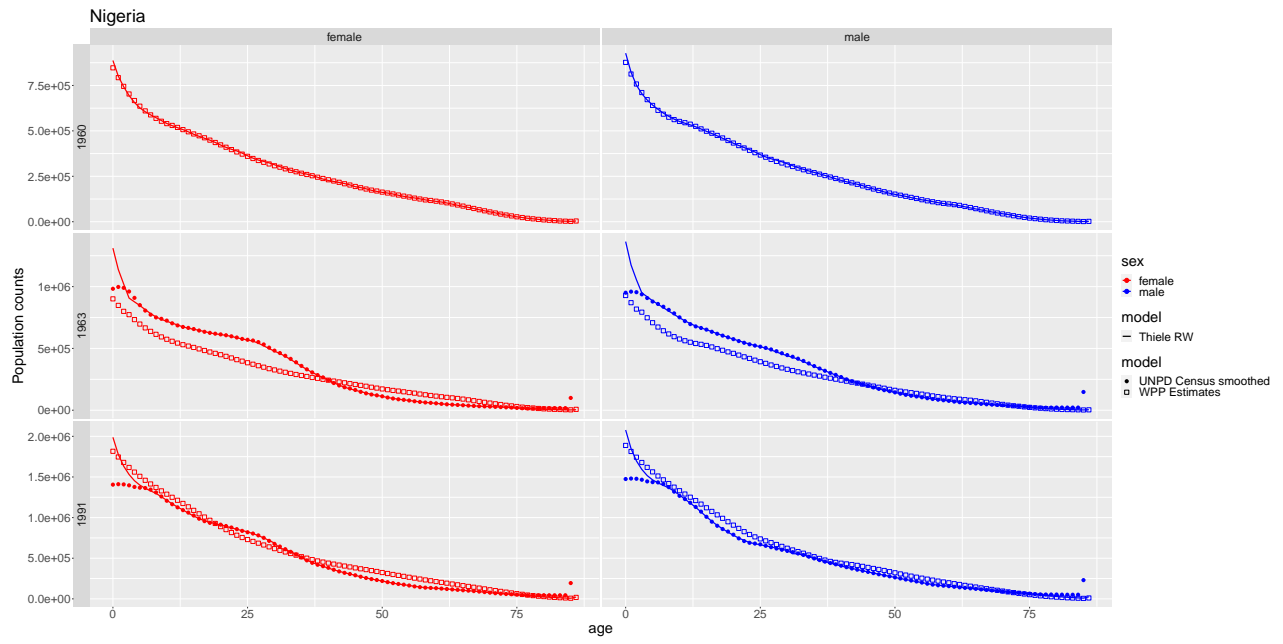


Figure 9: Population

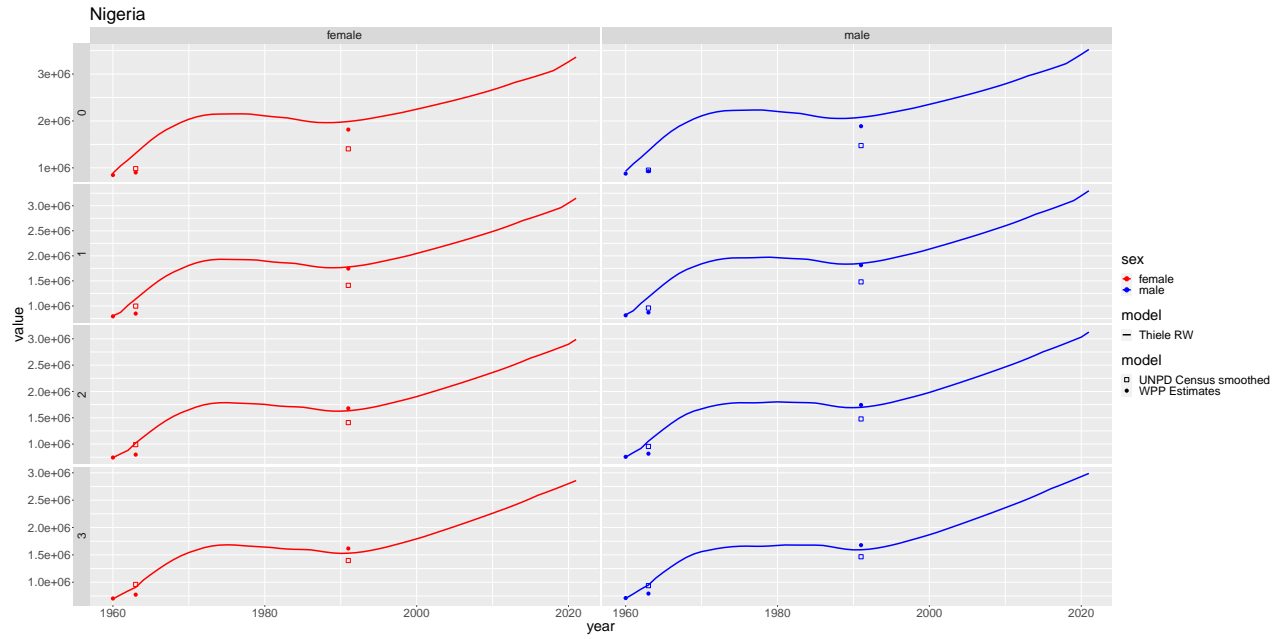


Figure 10: Population

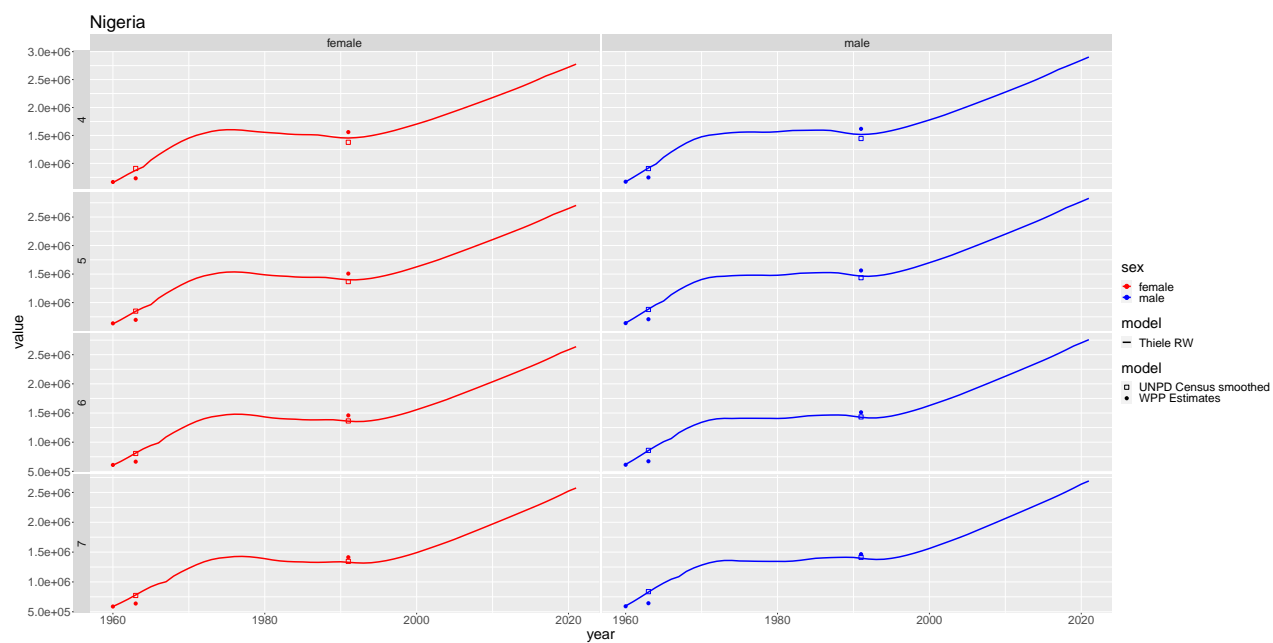


Figure 11: Population



Figure 12: Population

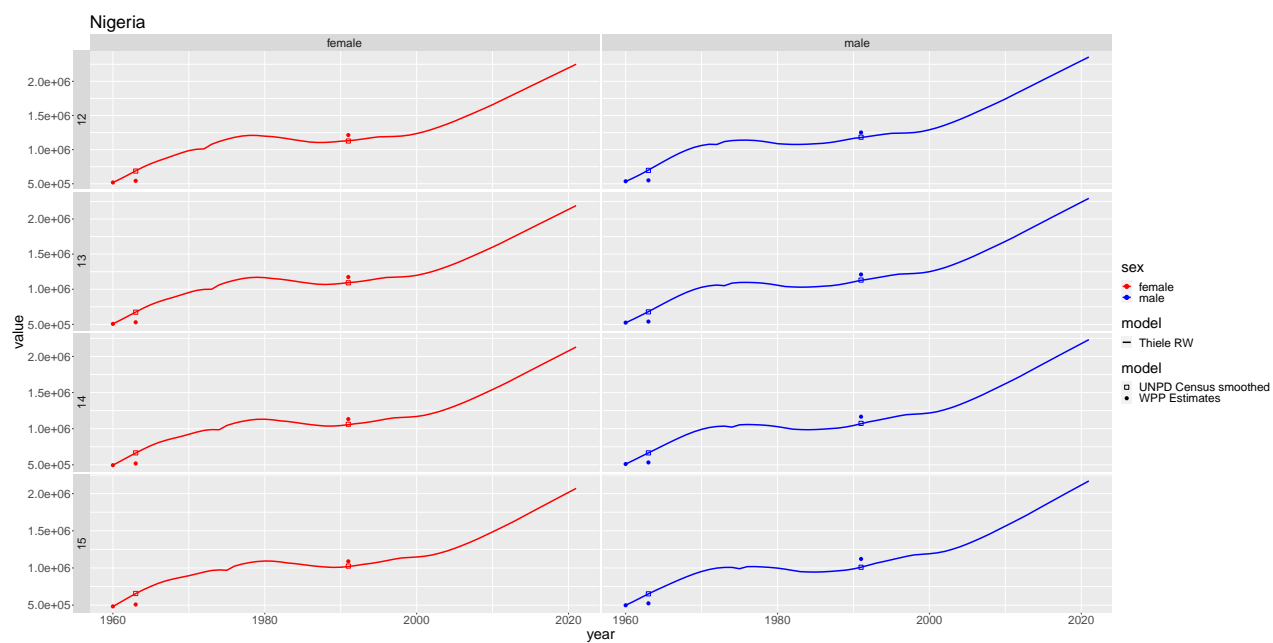


Figure 13: Population

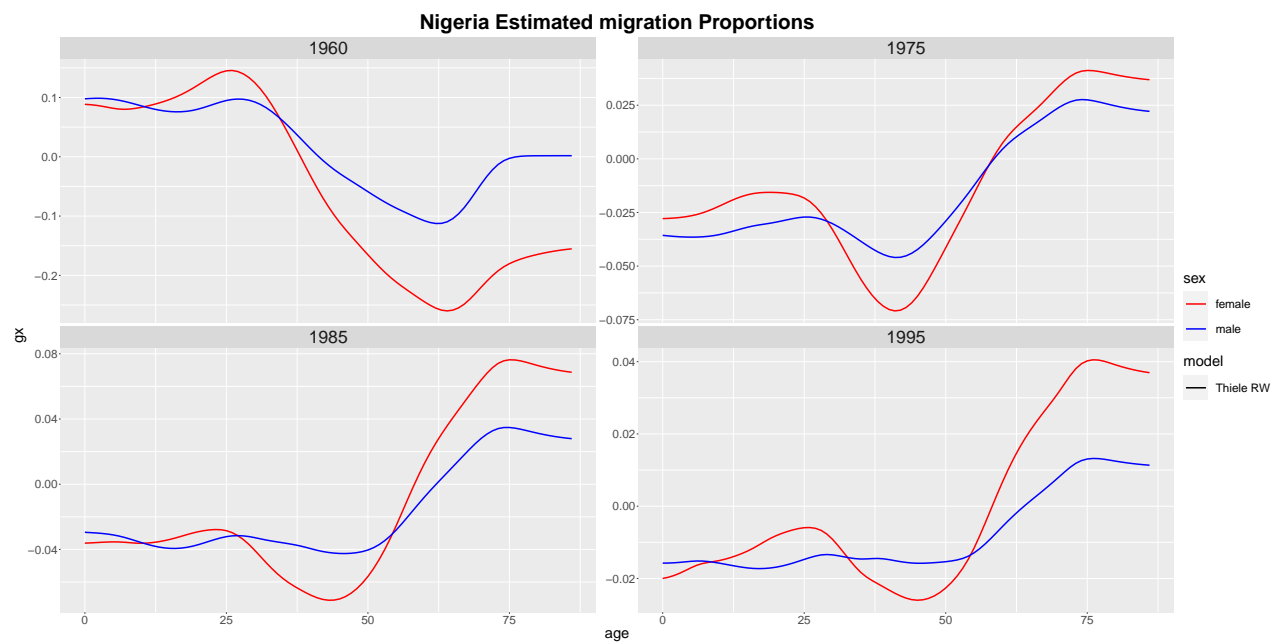


Figure 14: Migration

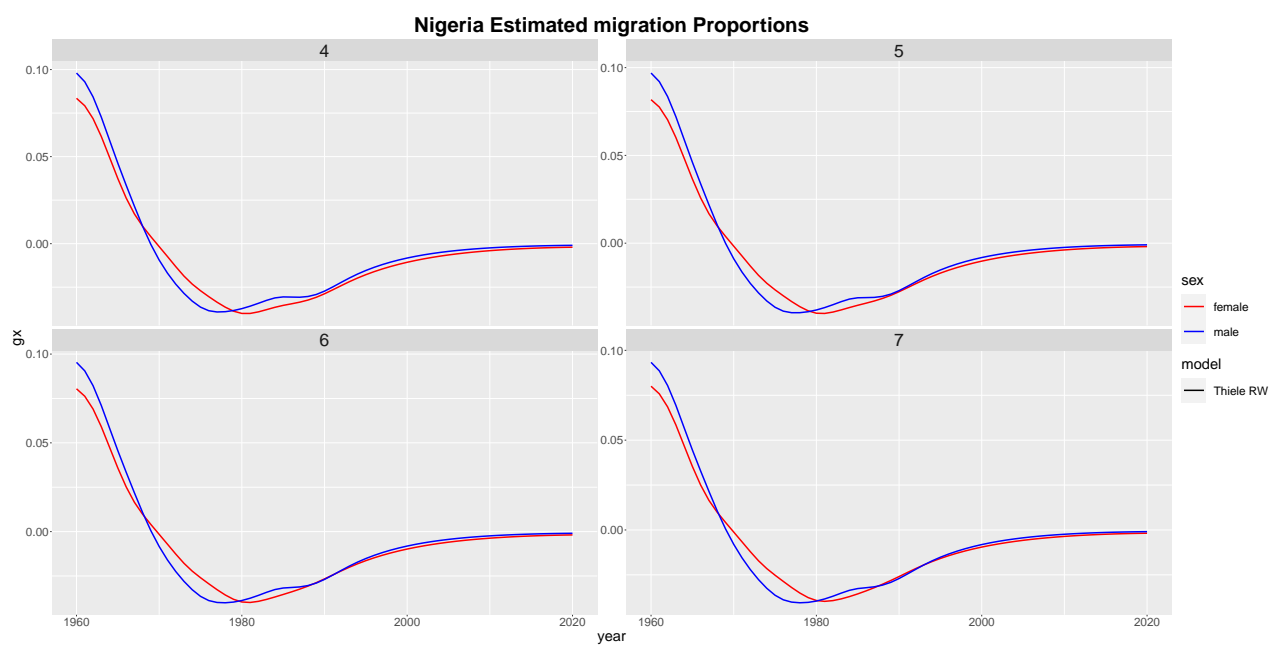


Figure 15: Migration

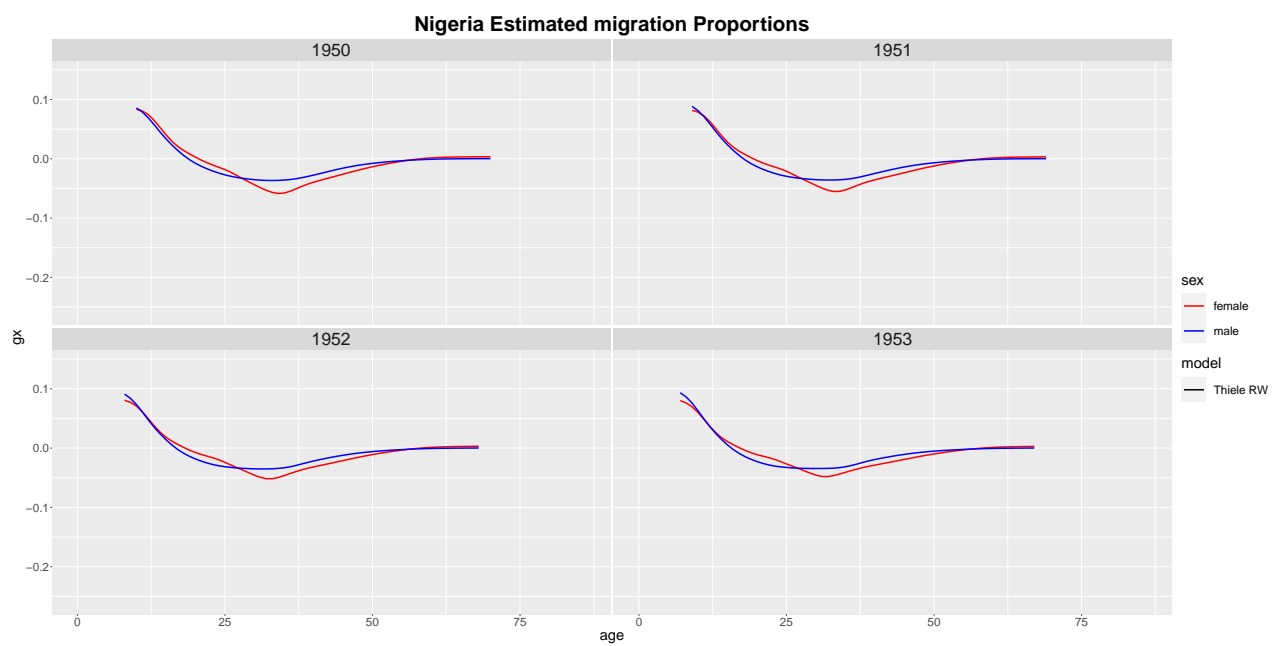


Figure 16: Migration

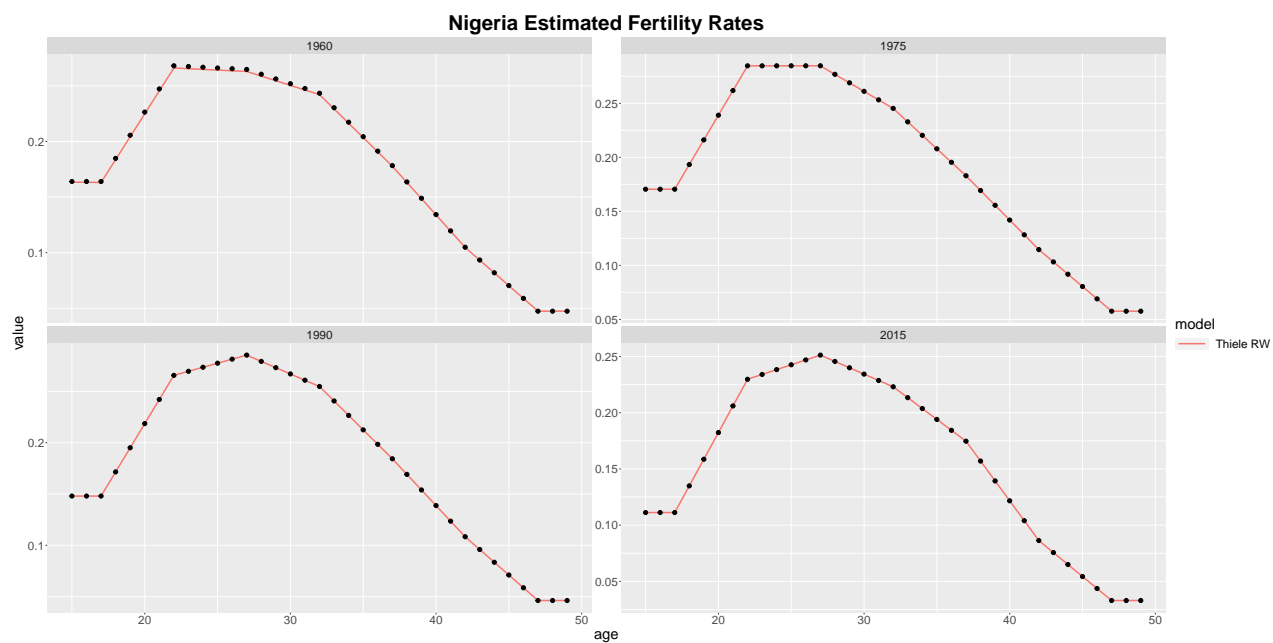


Figure 17: Fertility

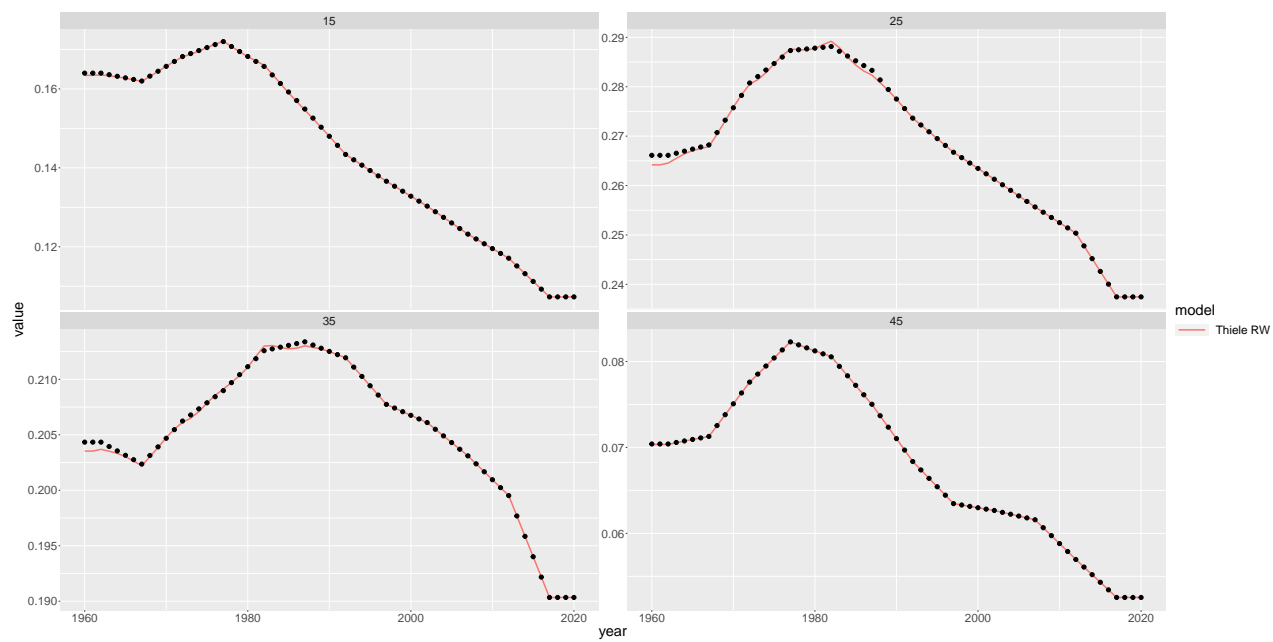


Figure 18: Fertility

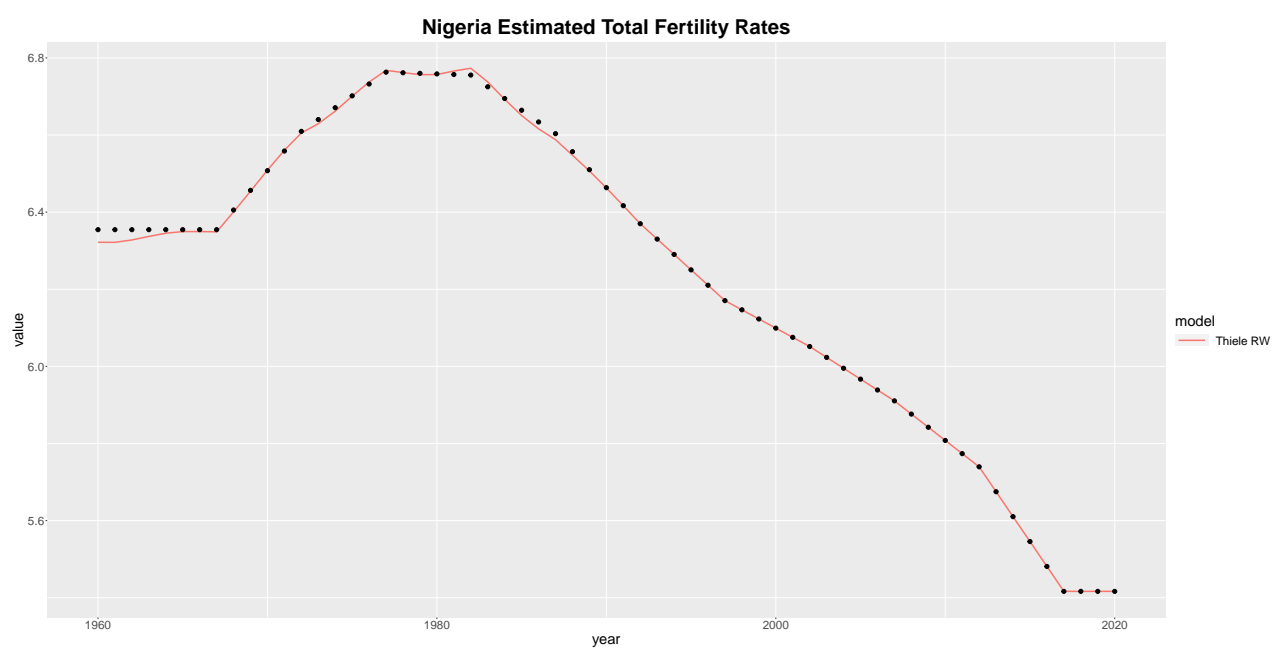


Figure 19: Total Fertility