

Congo

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

## # A tibble: 87 x 3
##   age `1984` `2007`
##   <dbl> <dbl> <dbl>
## 1     0 35780. 63134
## 2     1 32394. 55440.
## 3     2 31853. 55413.
## 4     3 31119. 53394.
## 5     4 30523. 52527
## 6     5 30052. 50909.
## 7     6 29399. 47603.
## 8     7 28809. 45296.
## 9     8 28035. 44039.
## 10    9 27308. 41994.
## # ... with 77 more rows
```

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

## # A tibble: 87 x 3
##   age `1984` `2007`
##   <dbl> <dbl> <dbl>
## 1     0 36028. 62619
## 2     1 32784. 55570
## 3     2 32208. 55347.
## 4     3 31432. 53310.
## 5     4 30785. 52485.
## 6     5 30225. 51053.
## 7     6 29484. 47942.
## 8     7 28831. 45711
## 9     8 28017. 44457
## 10    9 27260. 42360.
## # ... with 77 more rows
```

Thiele log-Normal Hump Spline

```
## [1] "false convergence (8)"
```

##	log_tau2_logpop_f	log_tau2_logpop_f	log_tau2_logpop_m	log_tau2_
##	5.8994115	4.6952105	5.9233544	4
##	log_tau2_gx_m	log_lambda_gx_age_f	log_lambda_gx_age_m	log_lambda_g
##	3.5421375	8.0307166	8.1554299	7
##	log_lambda_gx_agemtime_m	log_lambda_tp	log_lambda_tp_0_inflated_sd	log_disp
##	6.9204081	2.7745181	0.3675503	0
##	log_marginal_prec_psi_f	log_marginal_prec_A_f	log_marginal_prec_B_f	log_marginal_pr
##	4.3157475	6.8124092	6.8376774	4
##	log_marginal_prec_B_m	log_lambda_phi_f	log_lambda_psi_f	log_lambda_
##	3.6002089	4.3289987	4.3172947	3
##	log_lambda_A_f	log_lambda_B_f	log_lambda_phi_m	log_lamb
##	4.3068830	4.3070555	4.3313680	4
##	log_lambda_epsilon_m	log_lambda_A_m	log_lambda_B_m	
##	3.4976057	4.3065202	3.7349760	

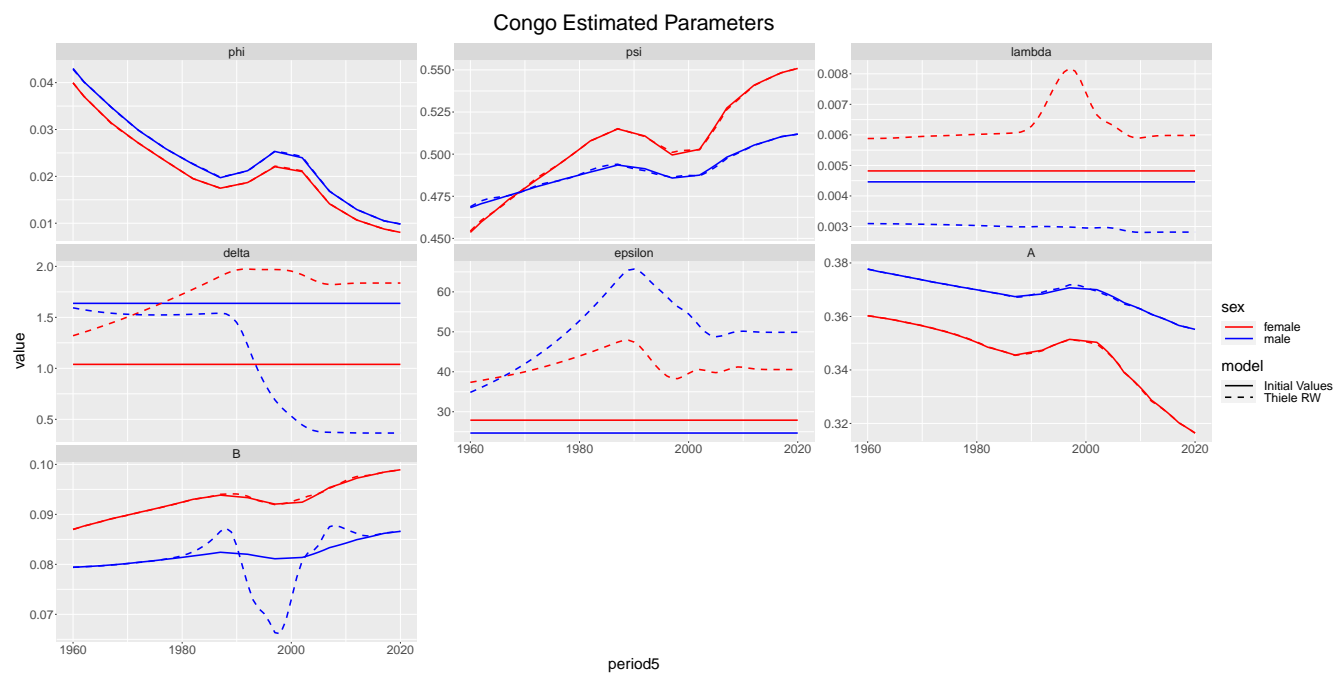


Figure 1: Estimated parameters

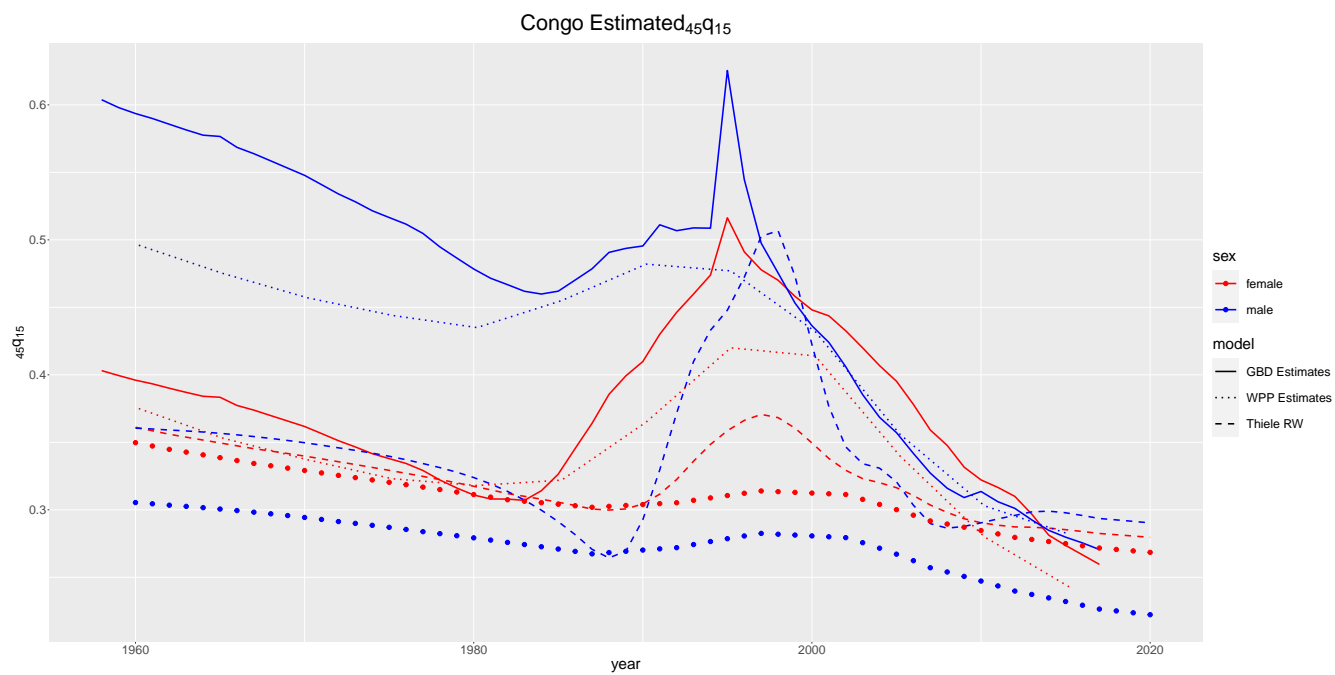


Figure 2: Estimated $_{45}q_{15}$

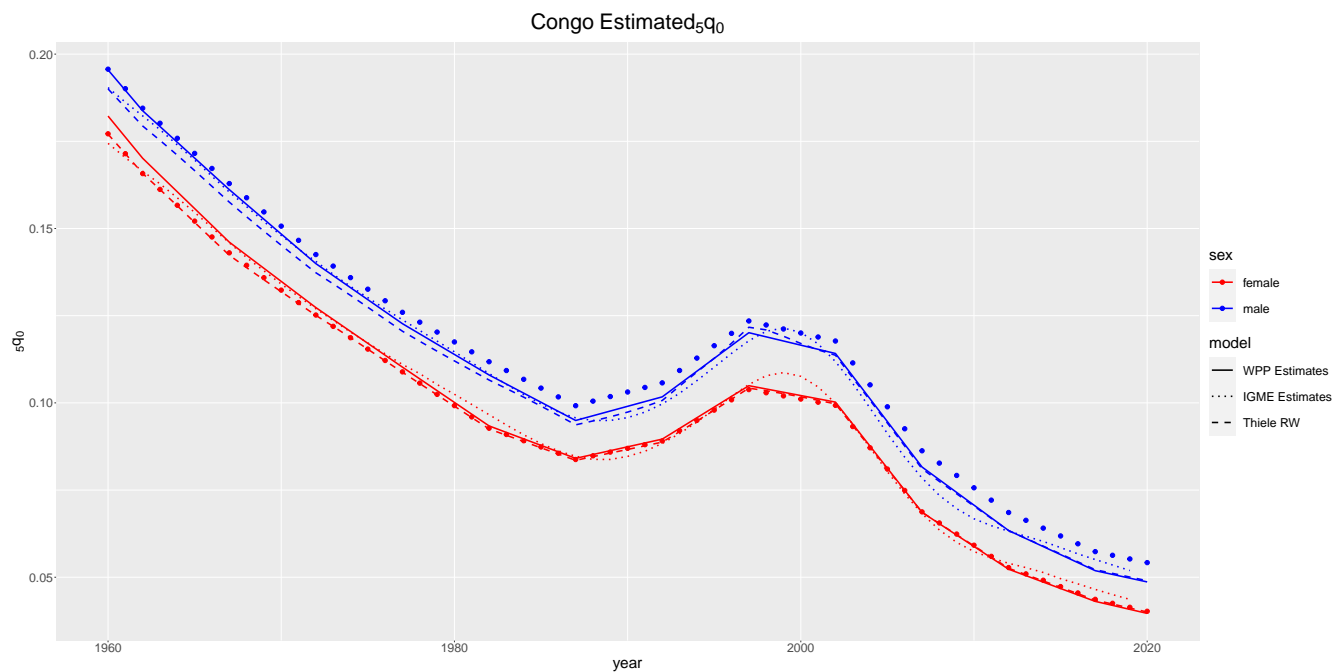


Figure 3: Estimated ${}_5q_0$

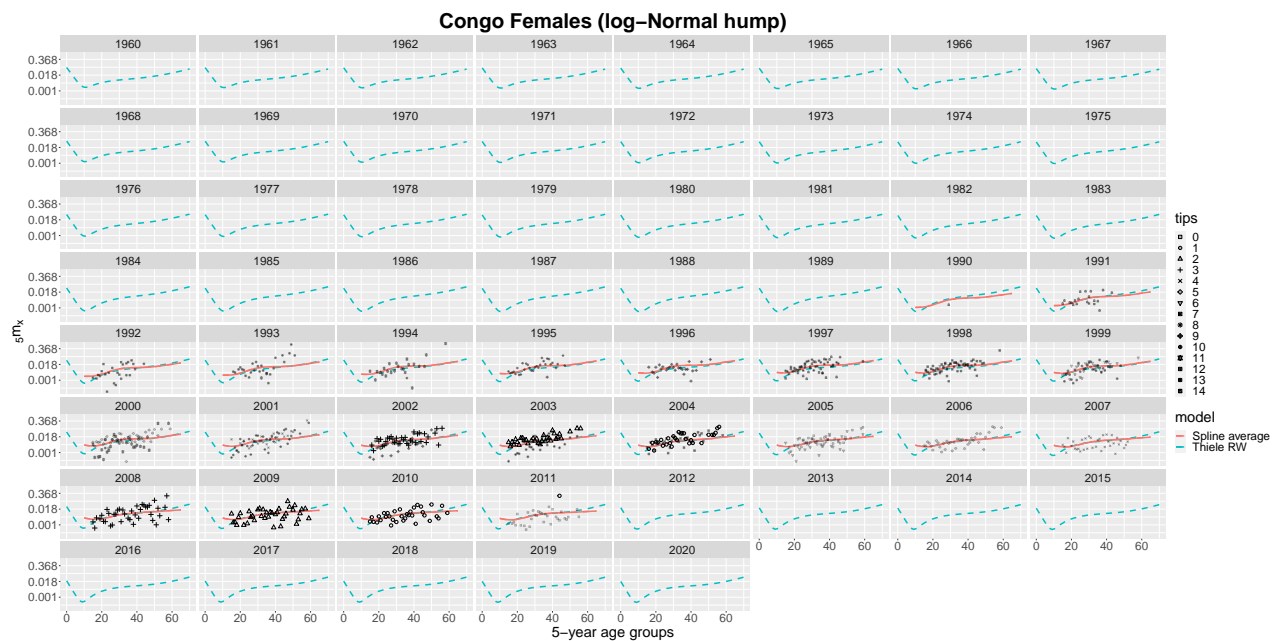


Figure 4: Mortality Schedules

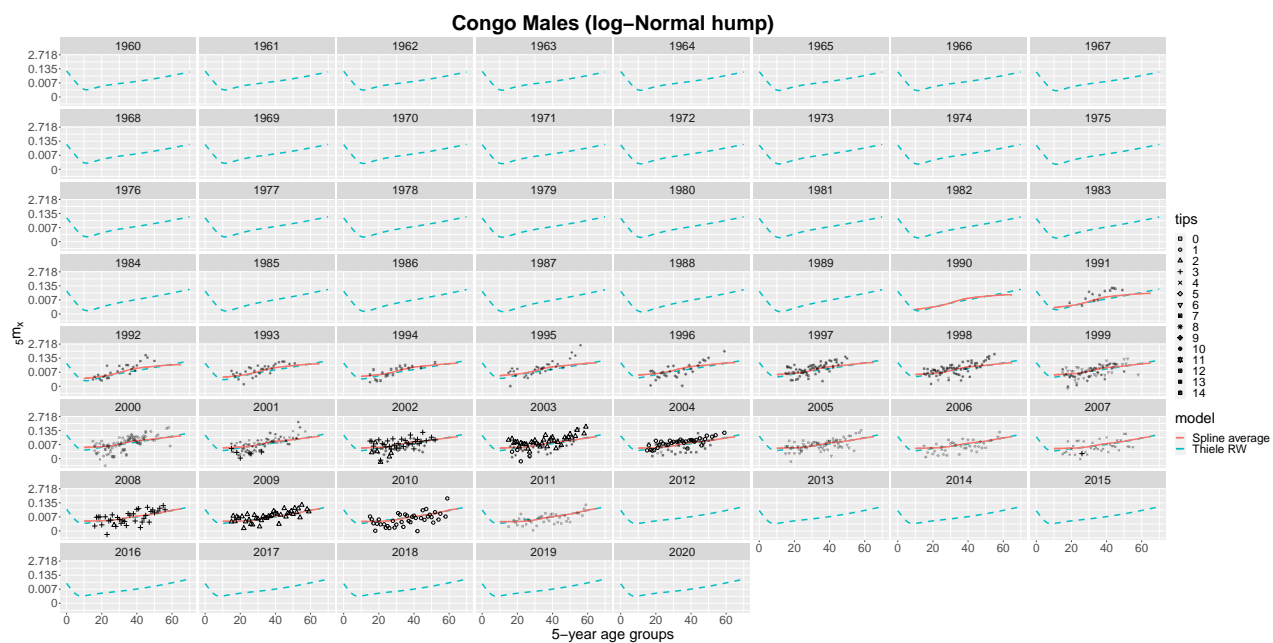


Figure 5: Mortality Schedules

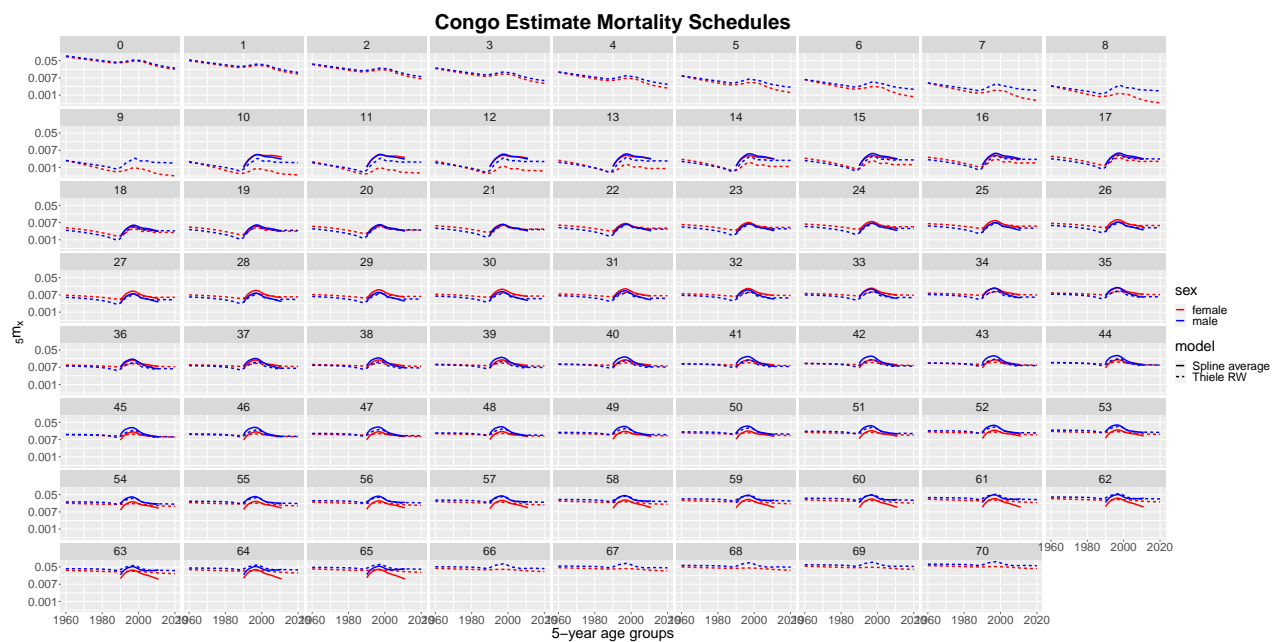


Figure 6: Mortality Schedules

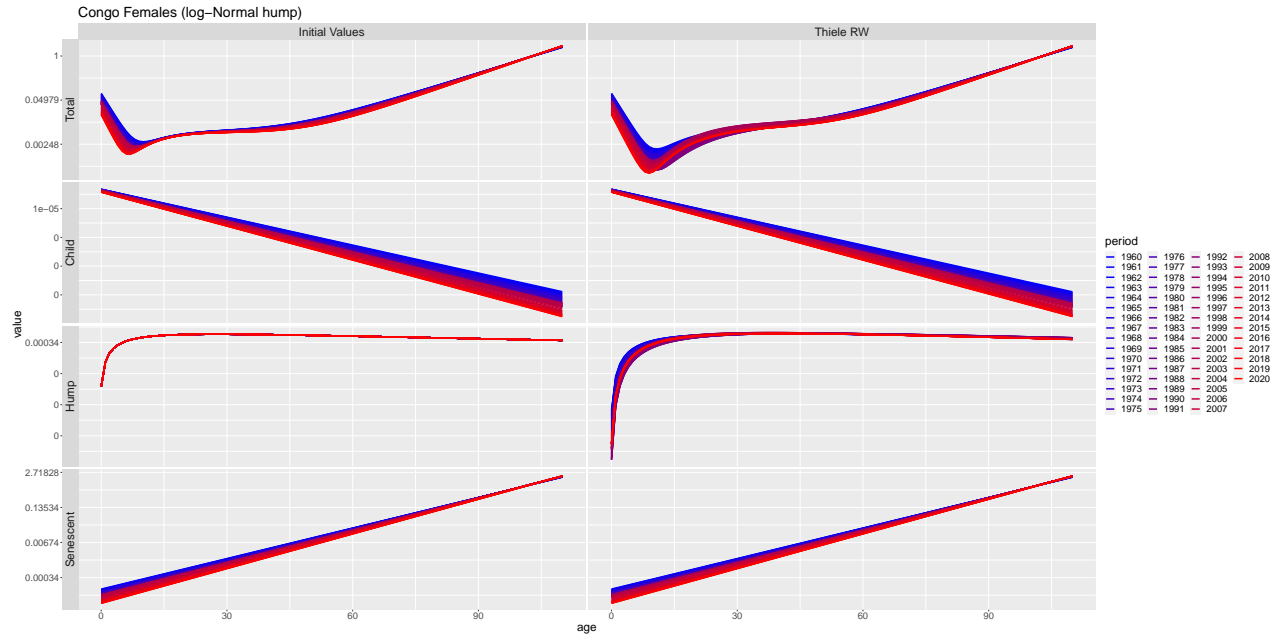


Figure 7: Thiele Decomposed

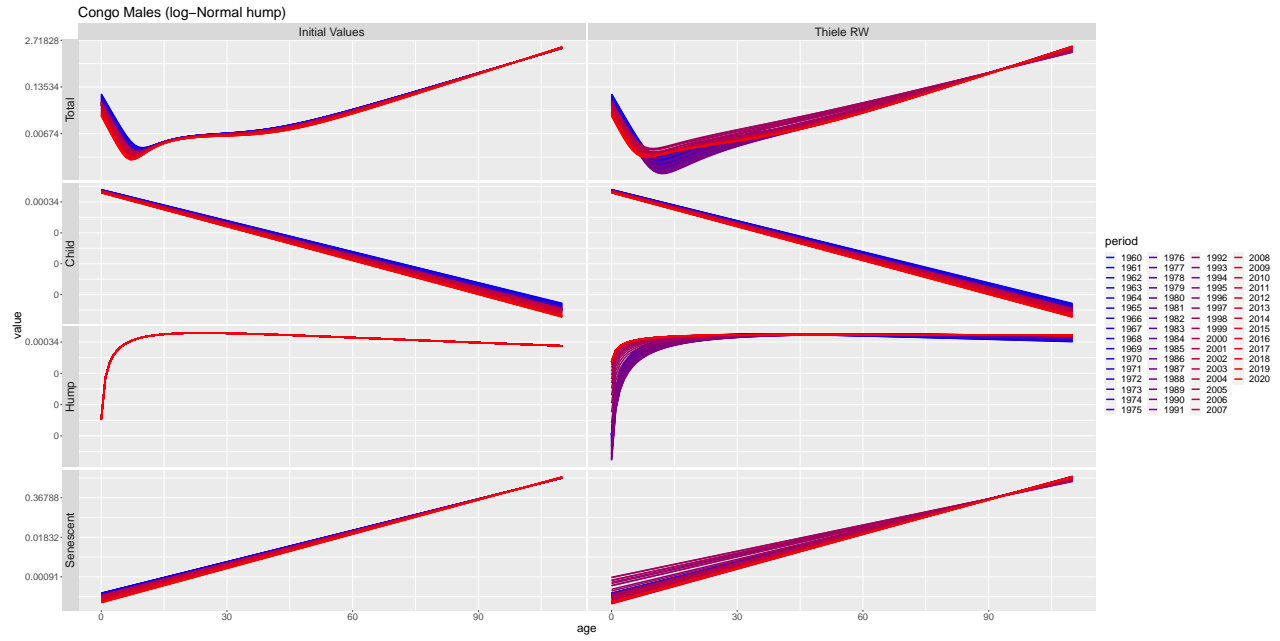


Figure 8: Thiele Decomposed

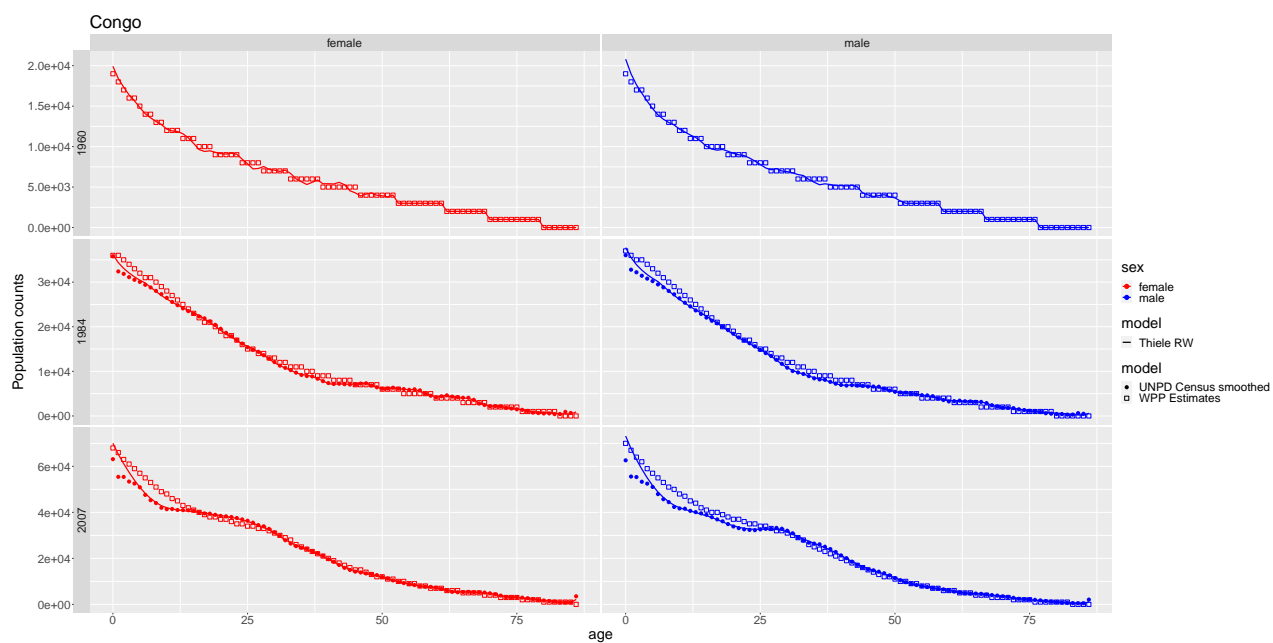


Figure 9: Population

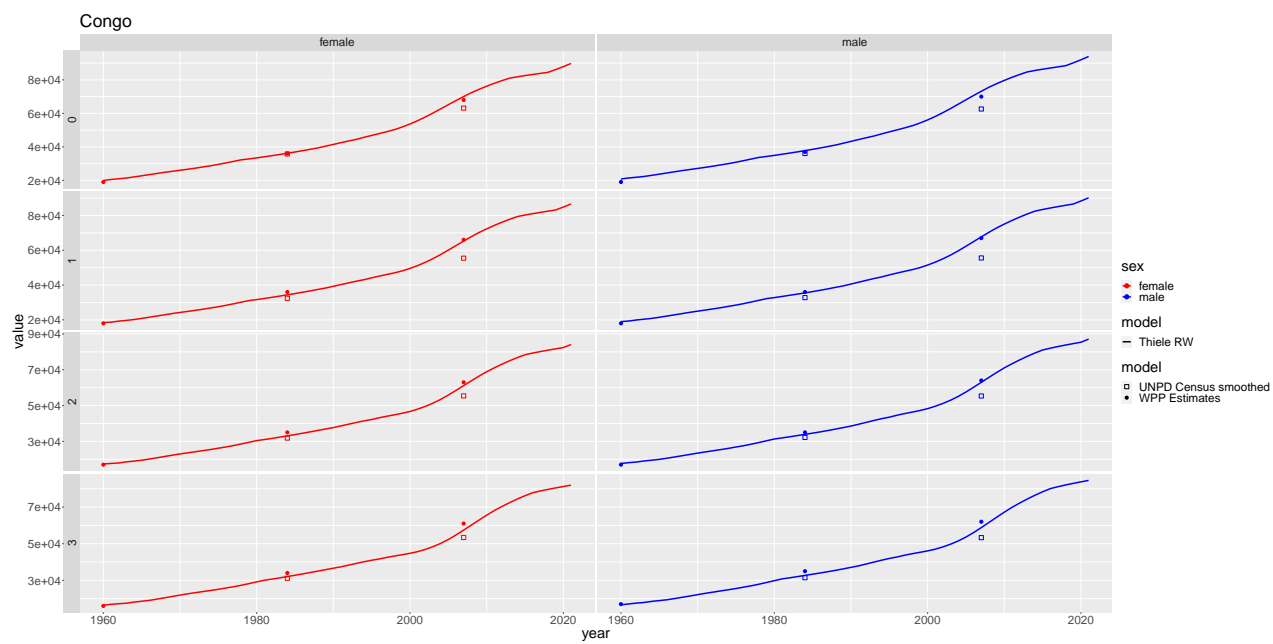


Figure 10: Population

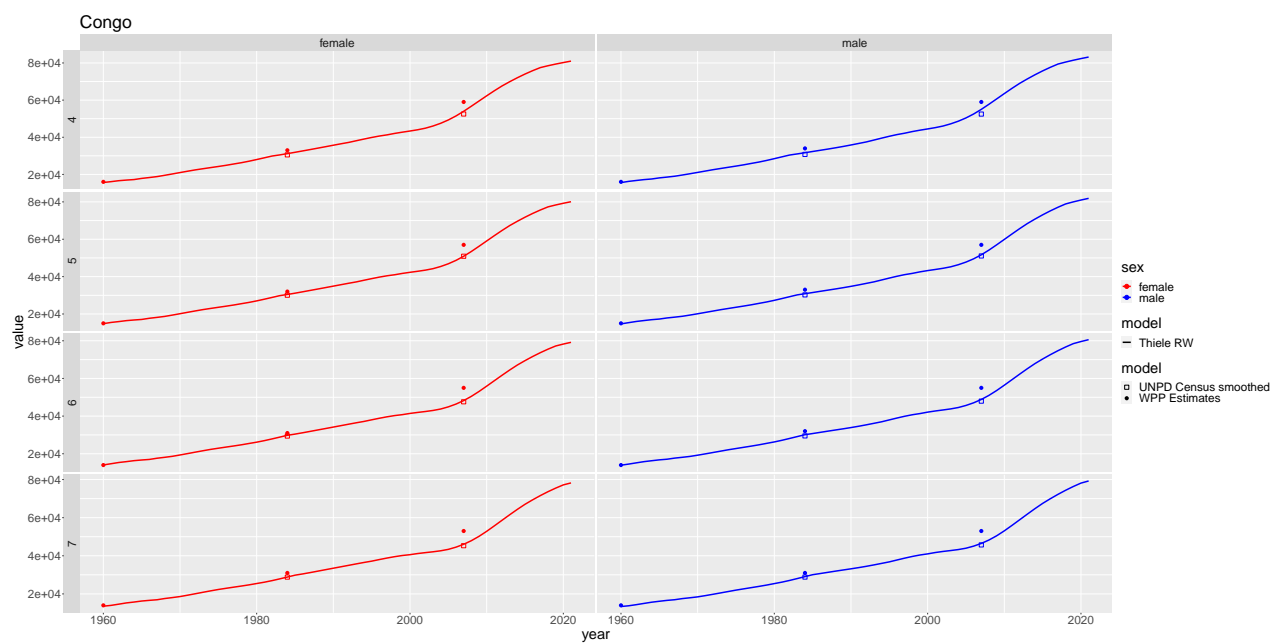


Figure 11: Population

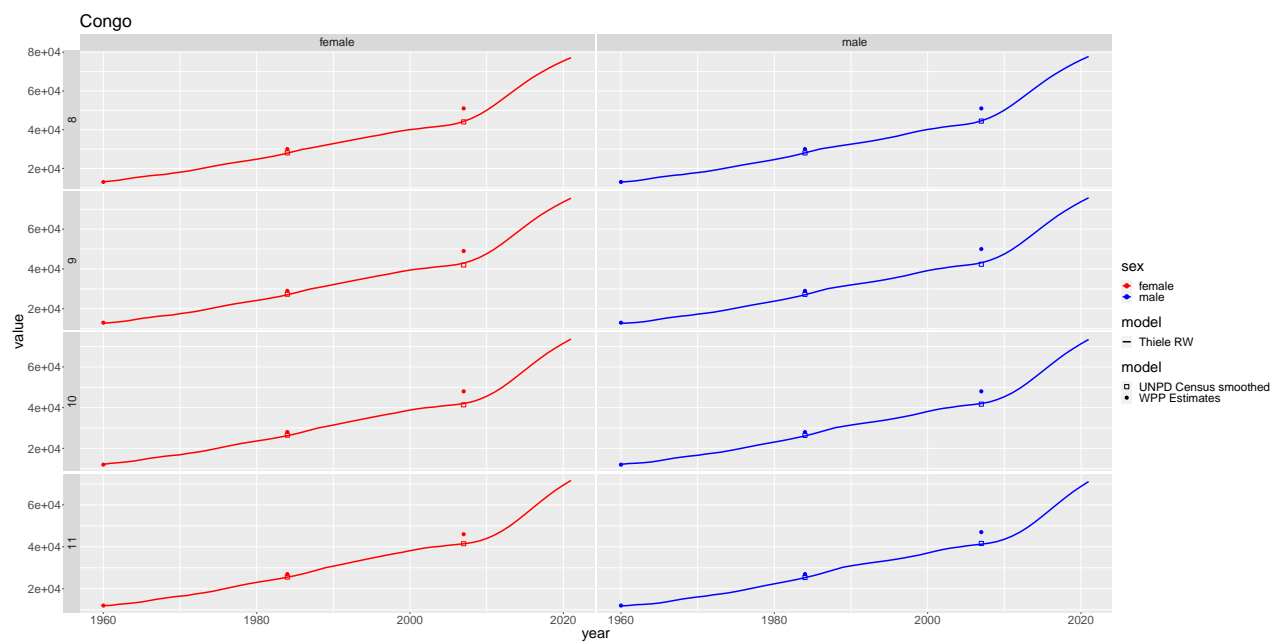


Figure 12: Population

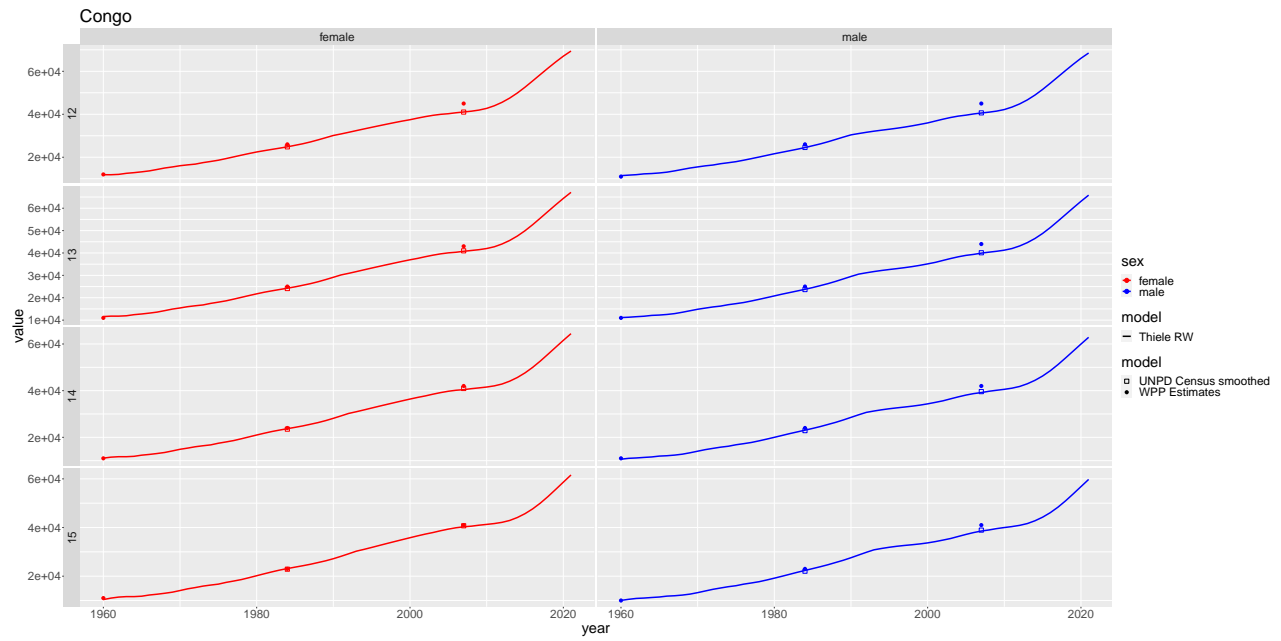


Figure 13: Population

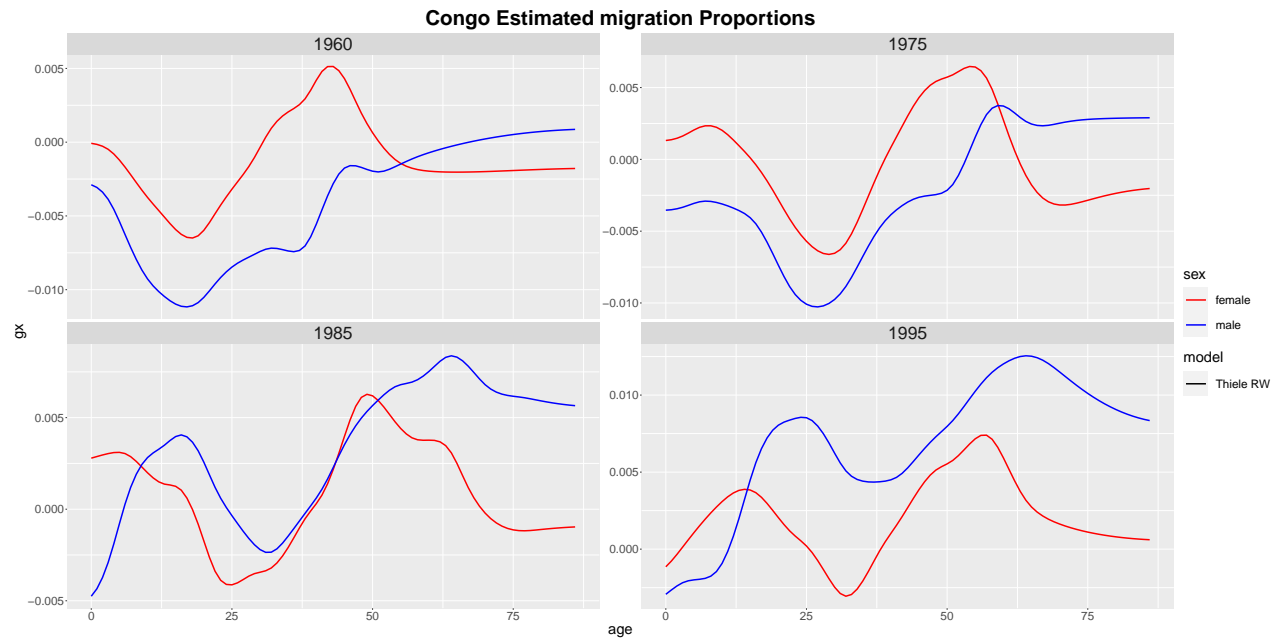


Figure 14: Migration

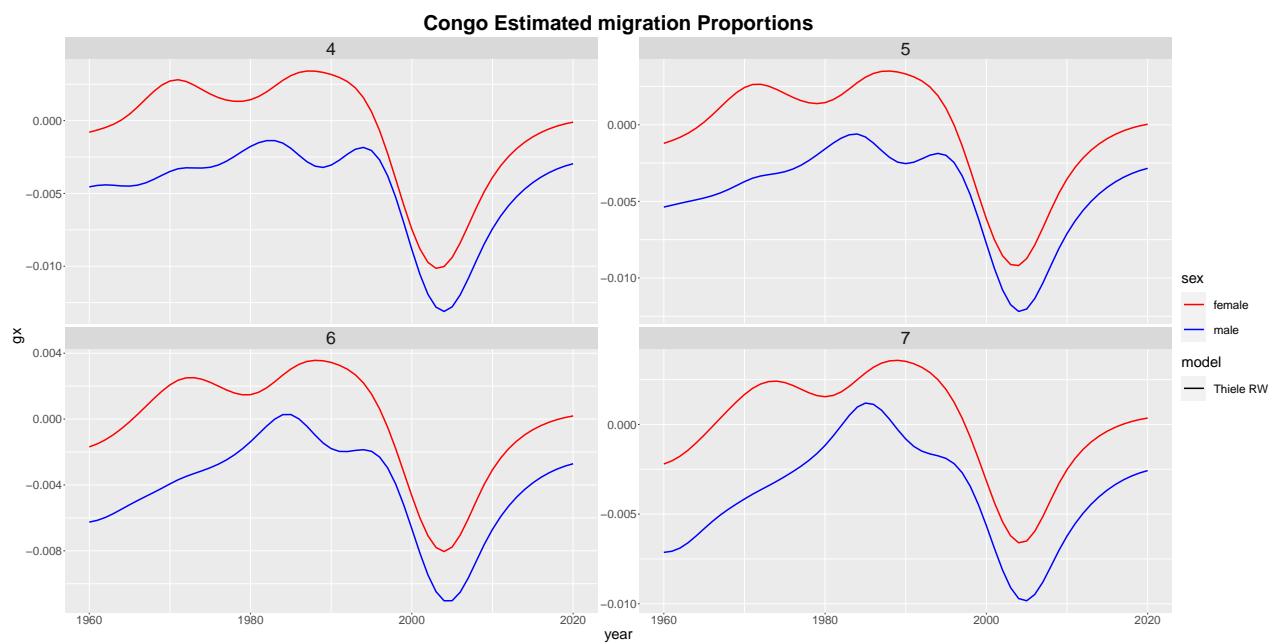


Figure 15: Migration

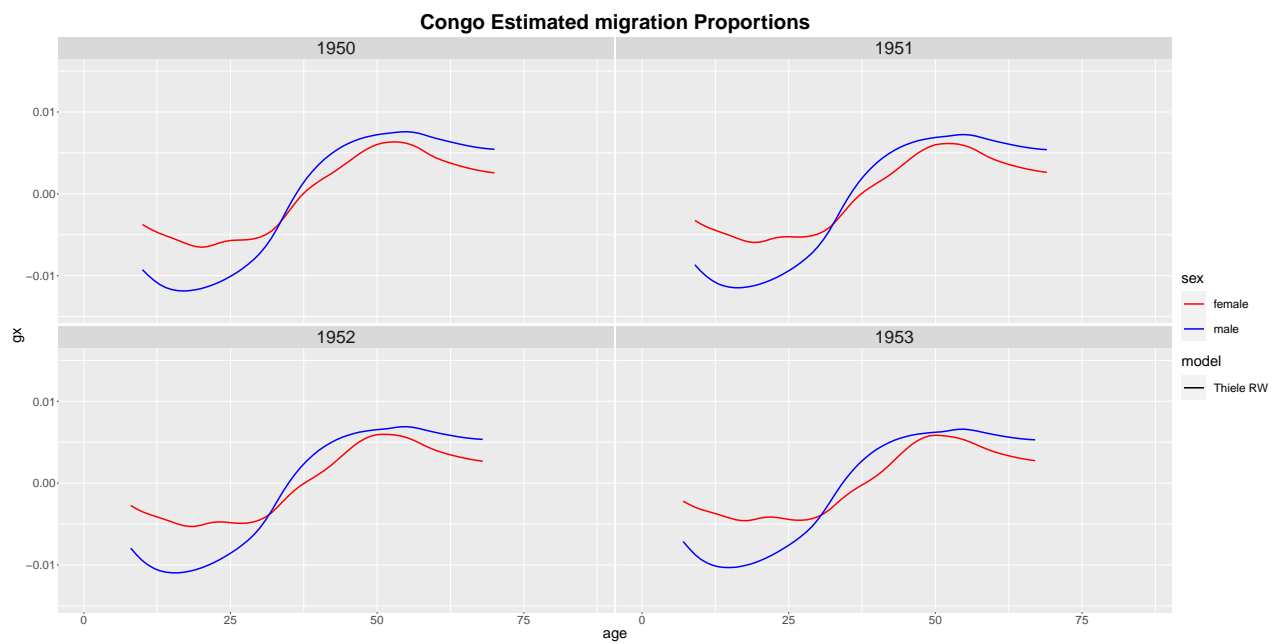


Figure 16: Migration

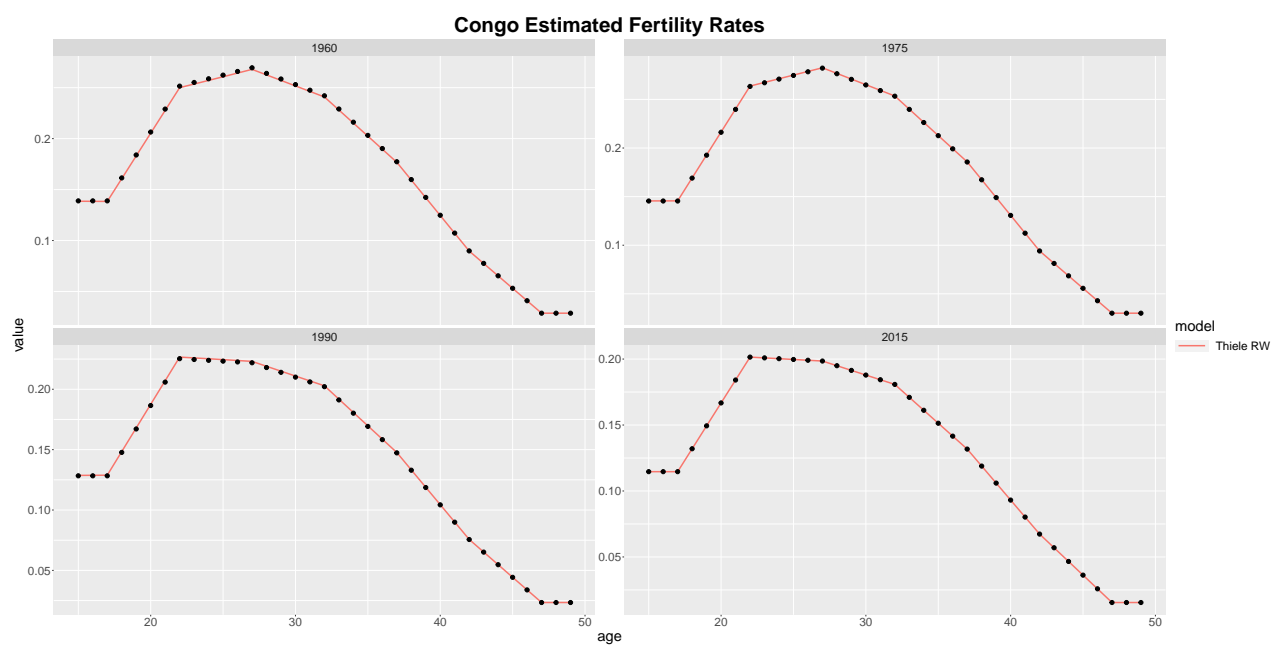


Figure 17: Fertility

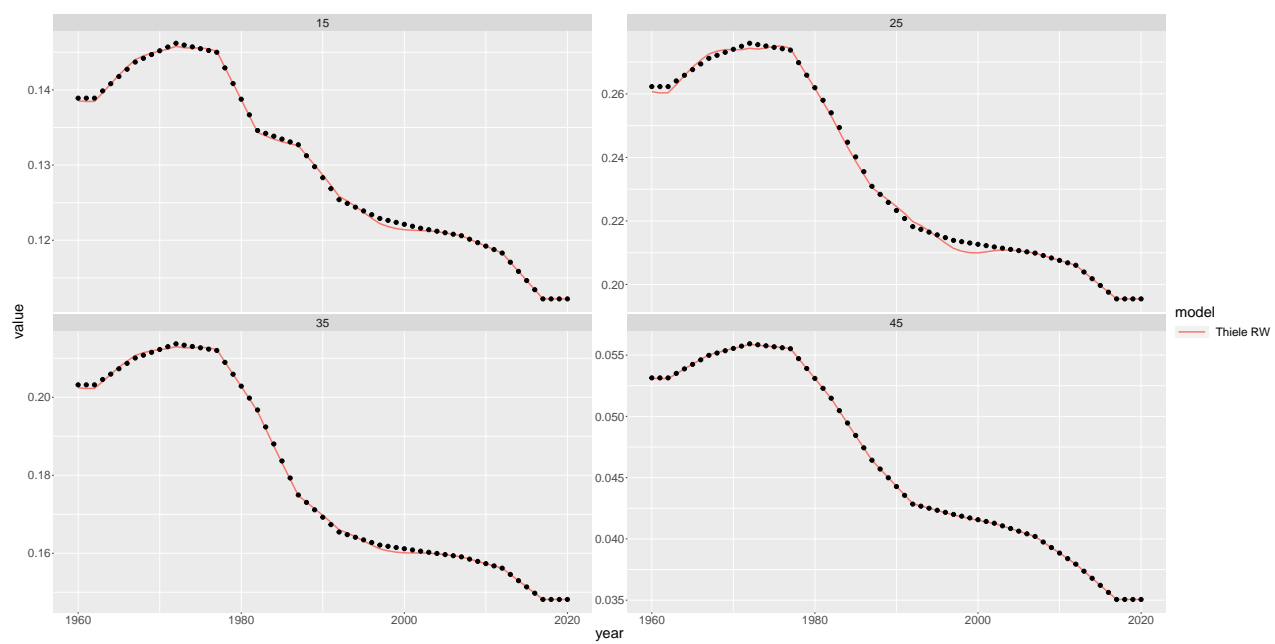


Figure 18: Fertility

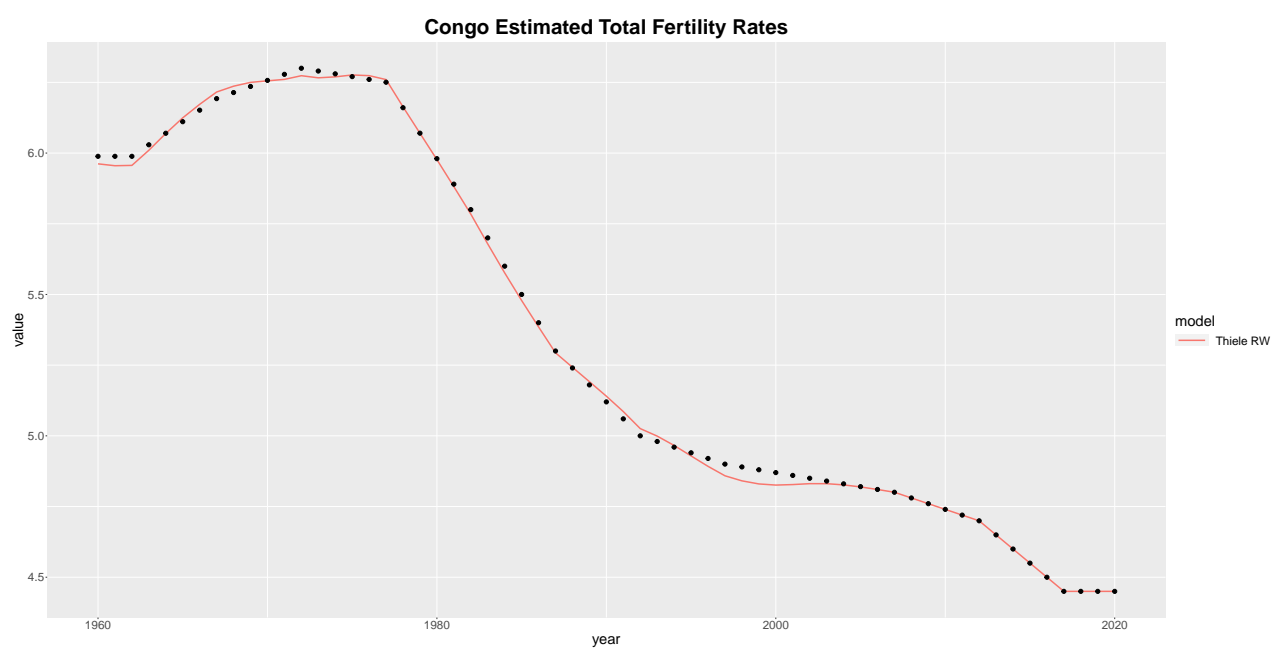


Figure 19: Total Fertility