

Burundi

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

## # A tibble: 86 x 3
##   age `1990` `2008`
##   <dbl>   <dbl>   <dbl>
## 1     0 103518. 148758.
## 2     1  96768. 144323.
## 3     2  99280. 146587.
## 4     3  98444. 141195.
## 5     4  97191. 137060.
## 6     5  93753. 132500.
## 7     6  89859. 125239.
## 8     7  86191. 118063.
## 9     8  81728. 111556.
## 10    9  75719. 107174.
## # ... with 76 more rows

## [1] "Census Females 5-year"

## # A tibble: 18 x 2
##   age `1979`
##   <dbl>   <dbl>
## 1     0 351217.
## 2     5 283841.
## 3    10 246185.
## 4    15 233752.
## 5    20 205602.
## 6    25 156787.
## 7    30 117321.
## 8    35  96868.
## 9    40  85160.
## 10   45  73888.
## 11   50  61436.
## 12   55  51258.
## 13   60  44370.
## 14   65  34656.
## 15   70  24107.
## 16   75  15919.
## 17   80   8678.
## 18   85   8387.

## [1] "Census Males"

## # A tibble: 86 x 3
##   age `1990` `2008`
##   <dbl>   <dbl>   <dbl>
## 1     0 103634. 145551.
## 2     1  96811. 140828.
## 3     2  98842. 142434.
## 4     3  97968. 137049.
## 5     4  96569. 132701.
## 6     5  93065. 127981.
```

```
## 7      6 89092. 120616.
## 8      7 85085. 113402.
## 9      8 80520. 106804.
## 10     9 74582. 102112.
## # ... with 76 more rows
```

```
## [1] "Census Males 5-year"
```

```
## # A tibble: 18 x 2
```

```
##   age `1979`
##   <dbl>   <dbl>
```

```
## 1      0 346363.
## 2      5 281131.
## 3     10 243533.
## 4     15 226268.
## 5     20 194141.
## 6     25 145324.
## 7     30 104707.
## 8     35  81102.
## 9     40  68939.
## 10    45  59998.
## 11    50  49340.
## 12    55  40463.
## 13    60  34783.
## 14    65  28076.
## 15    70  21455.
## 16    75  15673.
## 17    80   9392.
## 18    85  12196.
```

Thiele log-Normal Hump Spline

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

##	log_tau2_logpop	log_tau2_logpop	log_tau2_logpop	log_tau2_logpop	log_lambda_fx	log
##	4.053822271	5.619826411	3.711126380	5.168034261	4.274187374	11
##	log_lambda_tp	tp_slope	tp_params_5	tp_params_10	log_lambda_phi	log
##	3.128848350	0.002772262	0.255597804	0.723015215	12.611902876	12
##	log_lambda_lambda	log_lambda_delta	log_lambda_epsilon			
##	3.657645880	8.258939533	7.652074096			

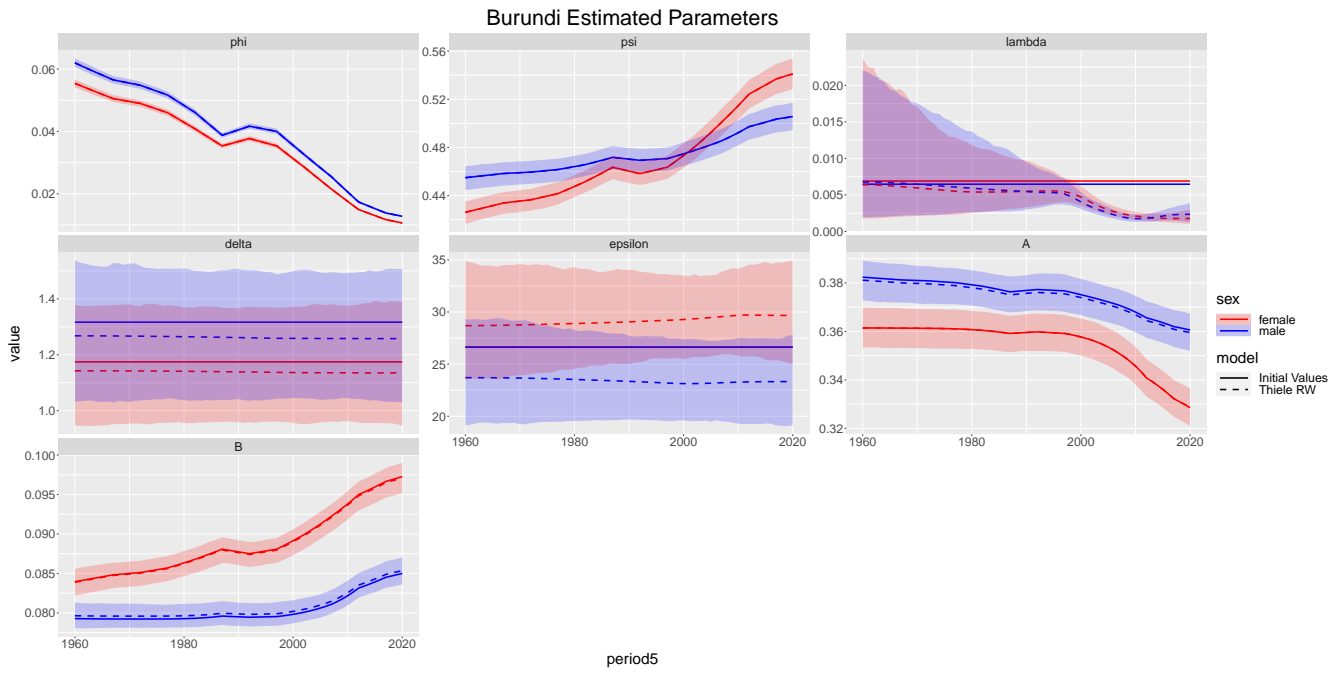


Figure 1: Estimated parameters

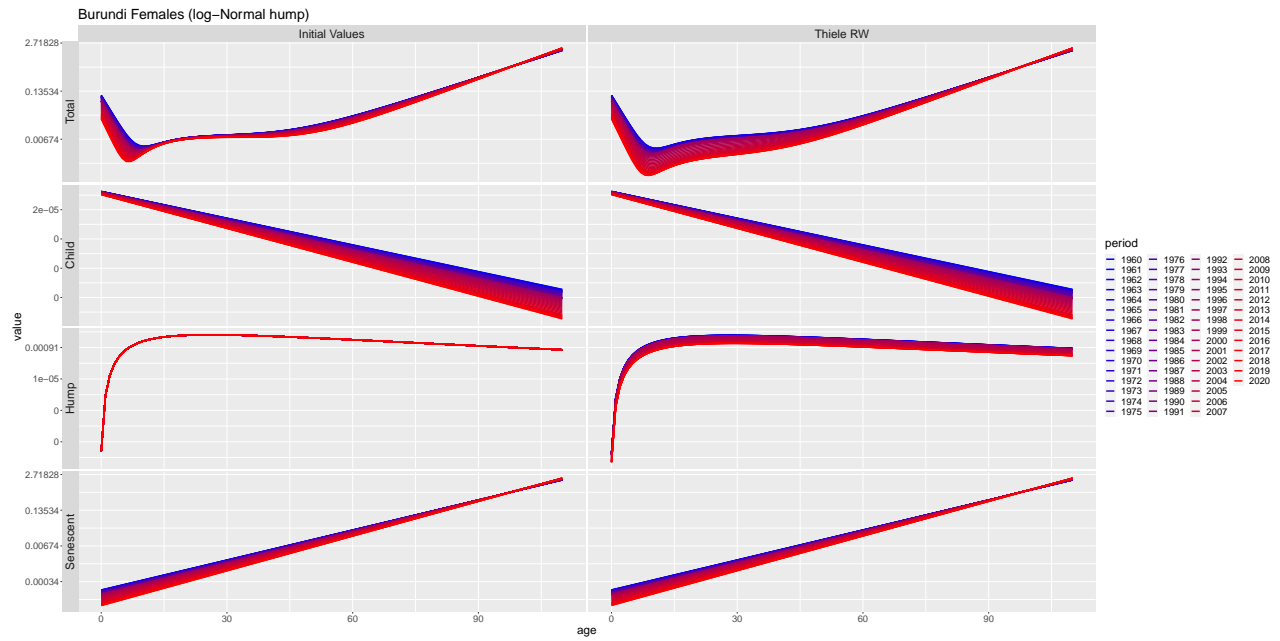


Figure 2: Thiele Decomposed

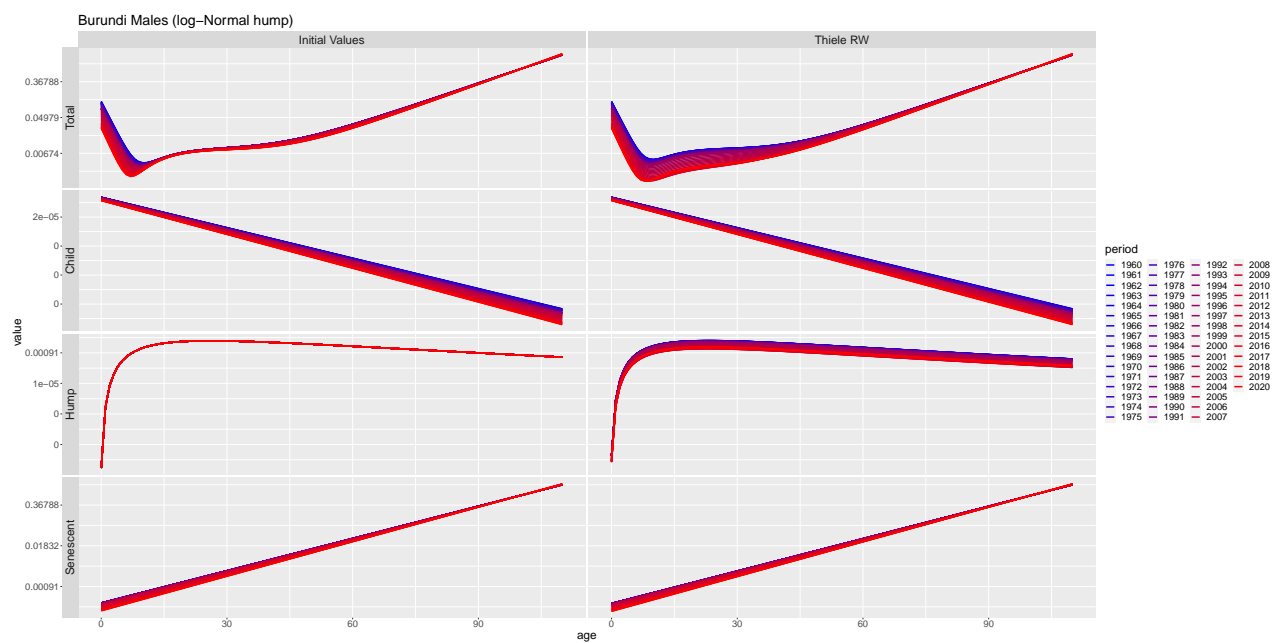


Figure 3: Thiele Decomposed

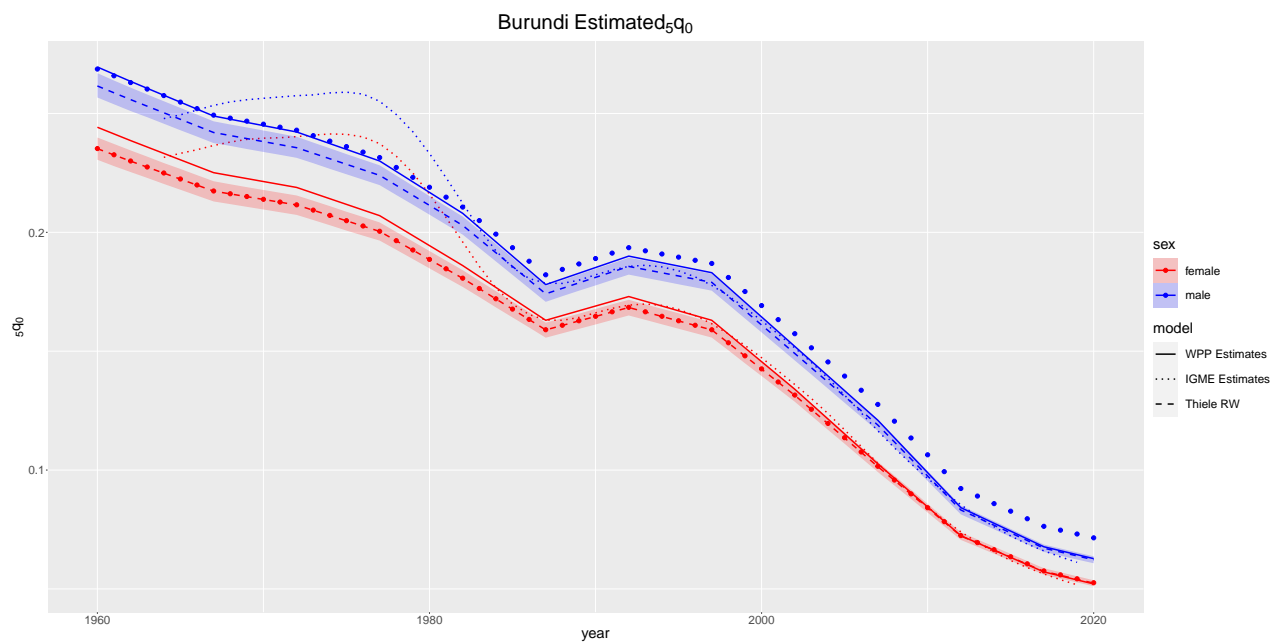


Figure 4: Estimated ${}_5q_0$

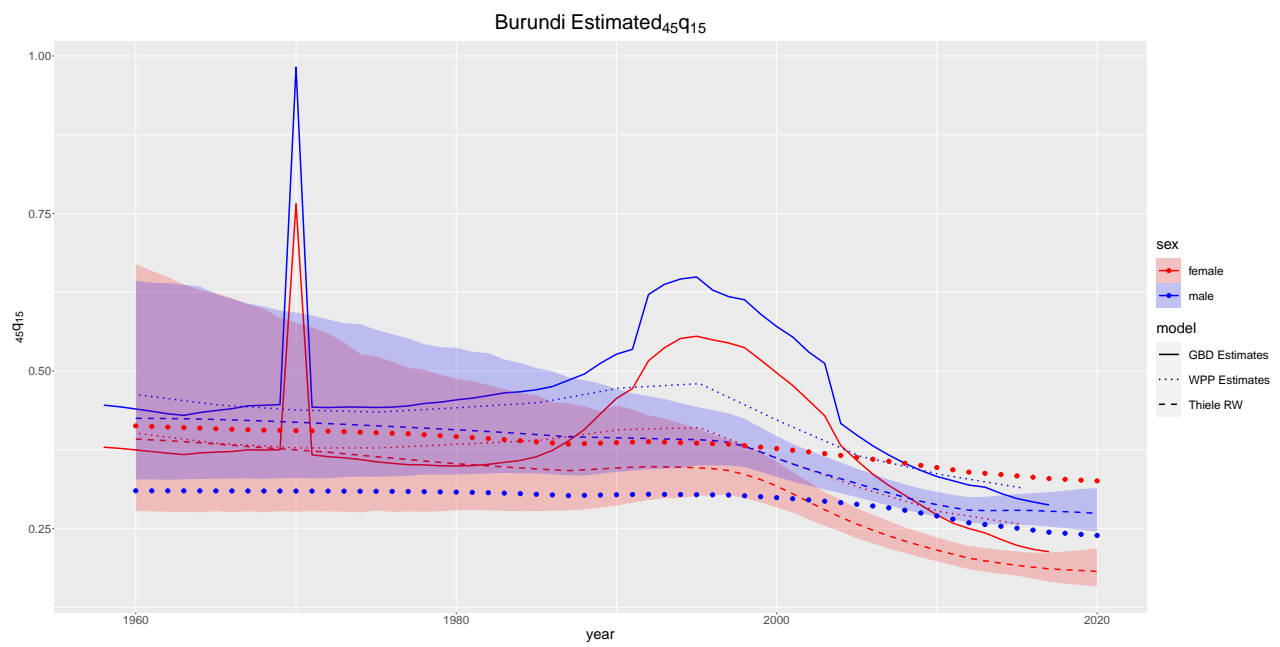


Figure 5: Estimated $_{45}q_{15}$

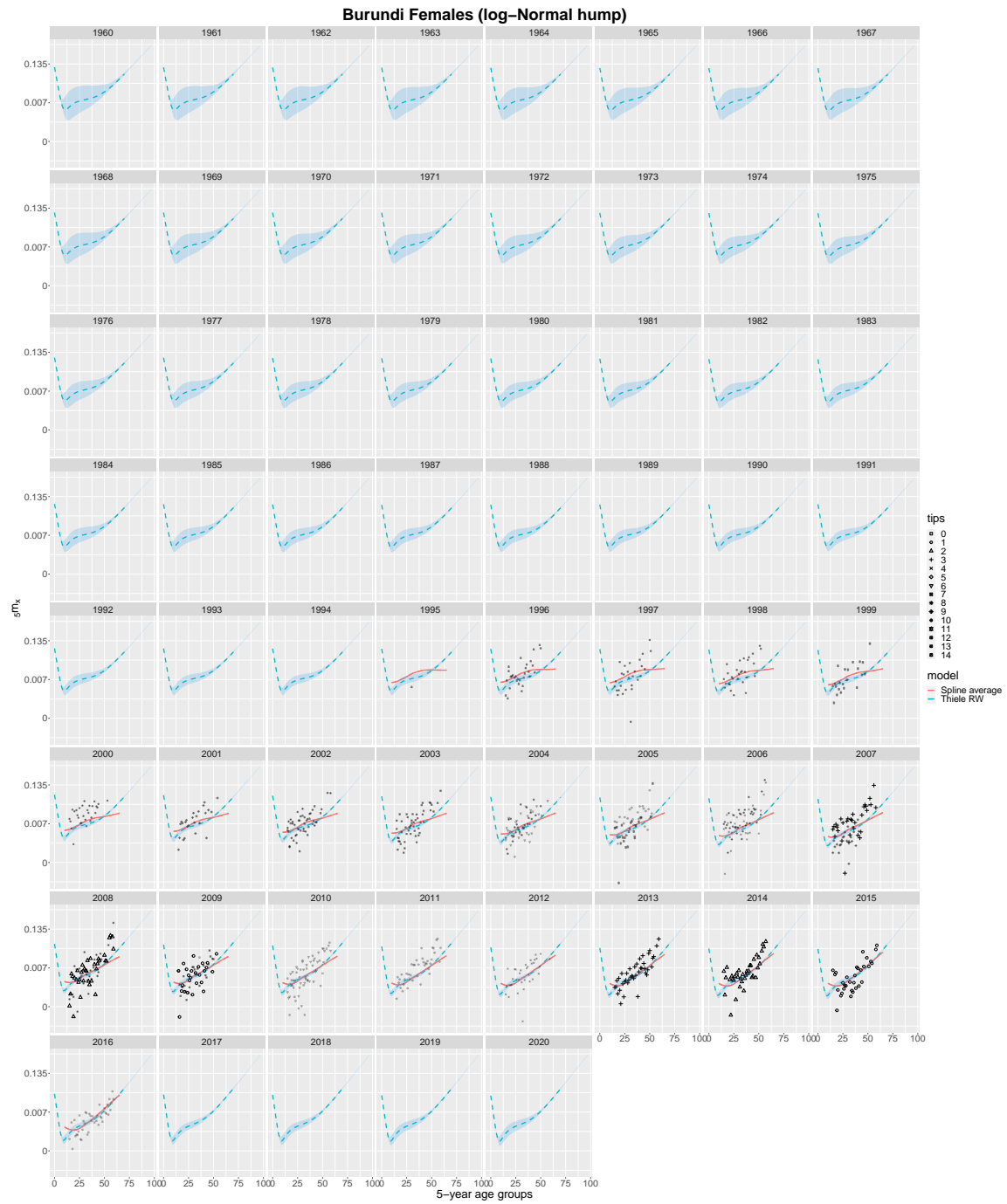


Figure 6: Mortality Schedules

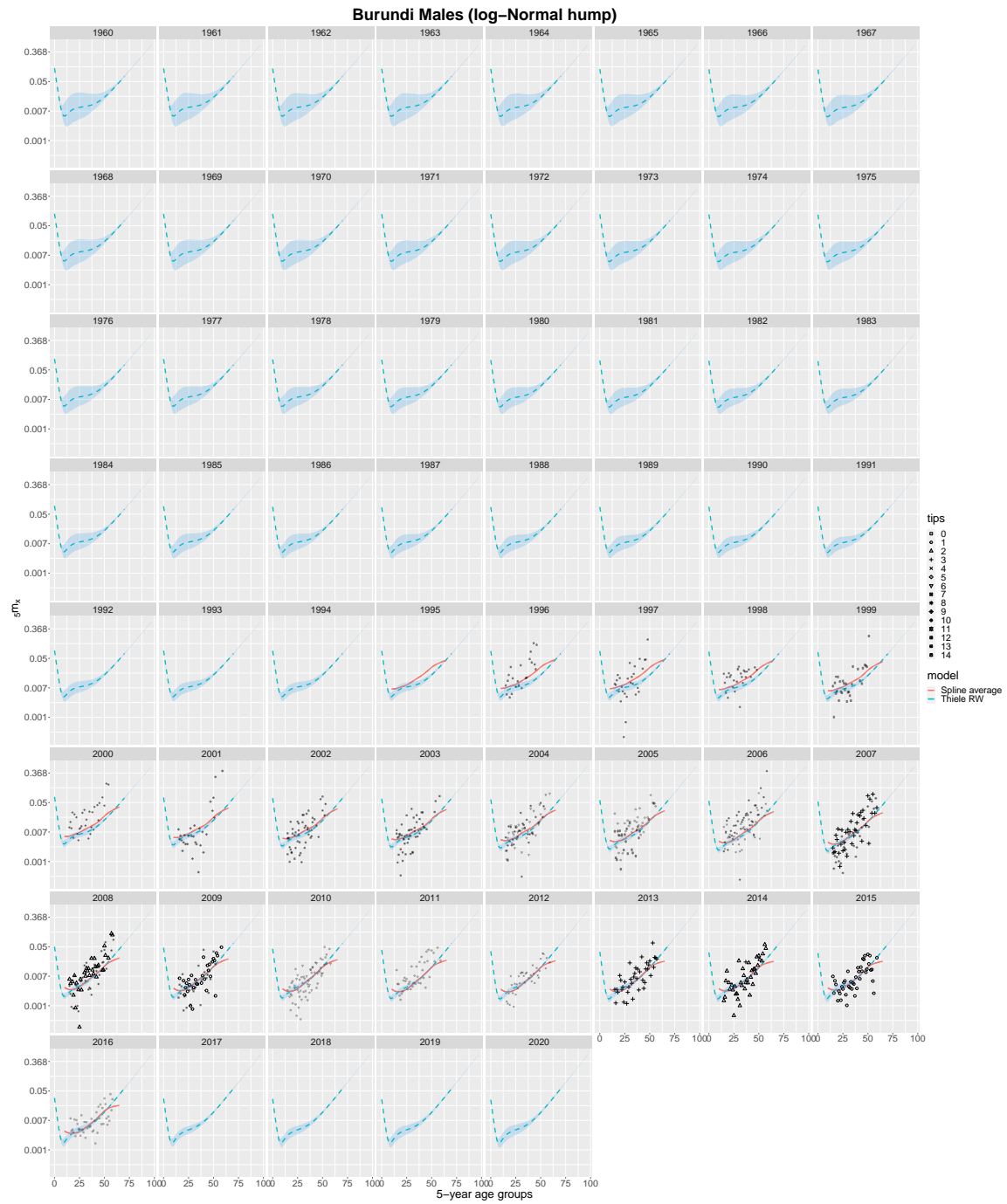


Figure 7: Mortality Schedules

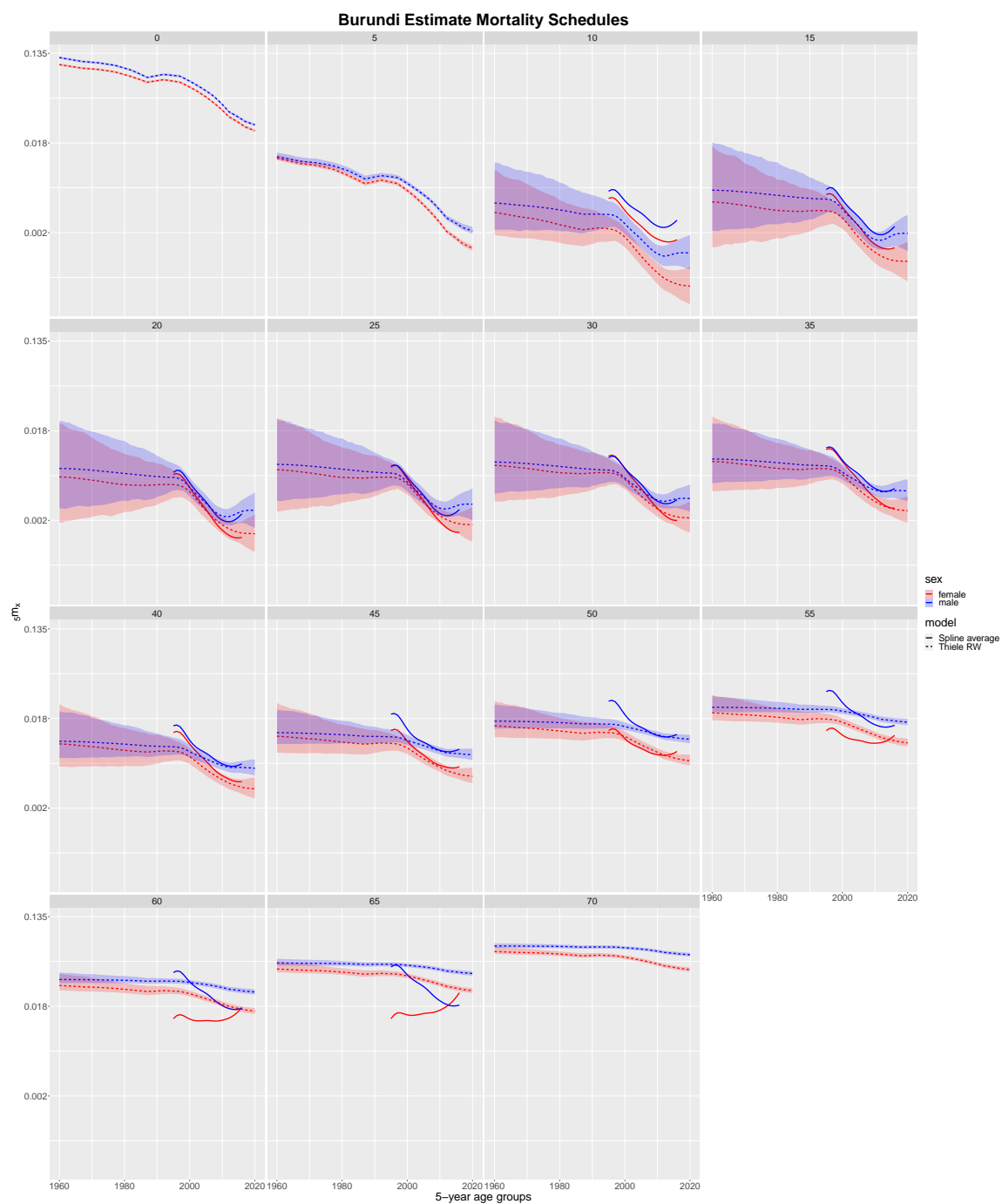


Figure 8: Mortality Schedules



Figure 9: Population

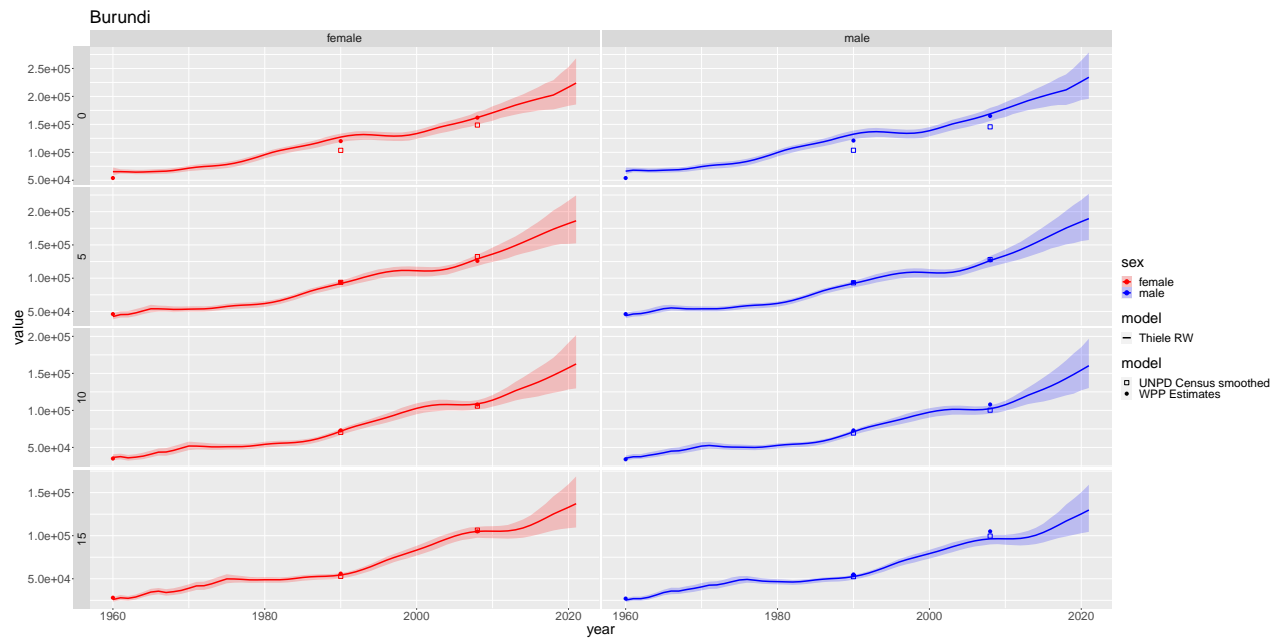


Figure 10: Population

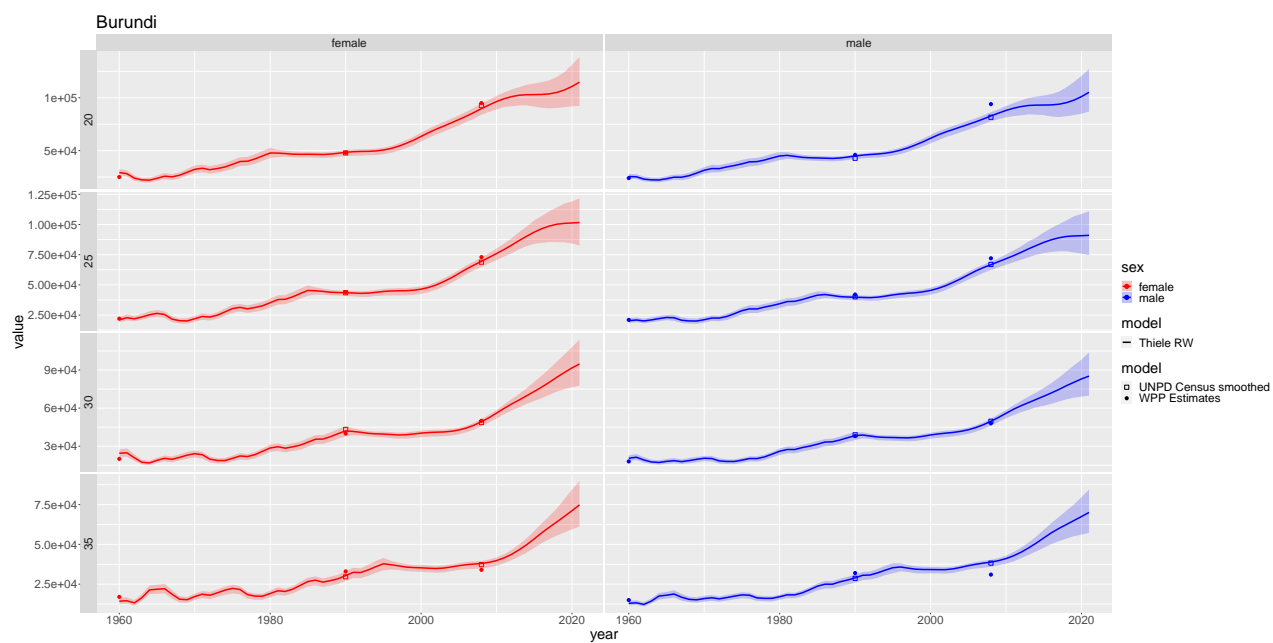


Figure 11: Population

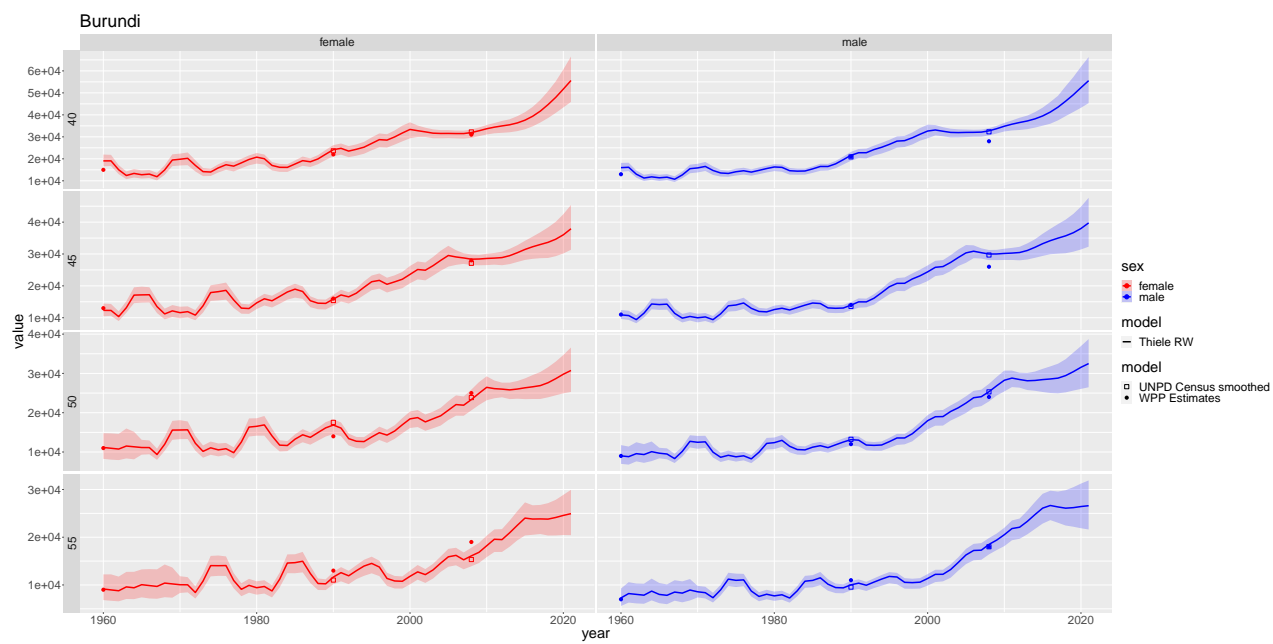


Figure 12: Population

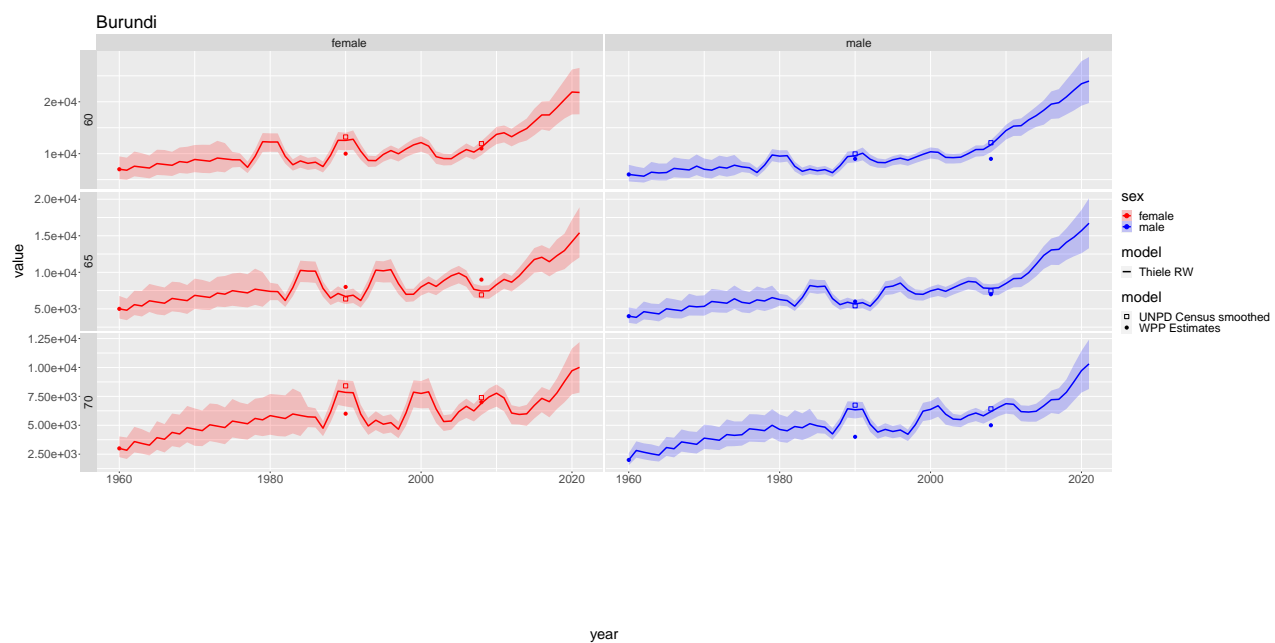


Figure 13: Population

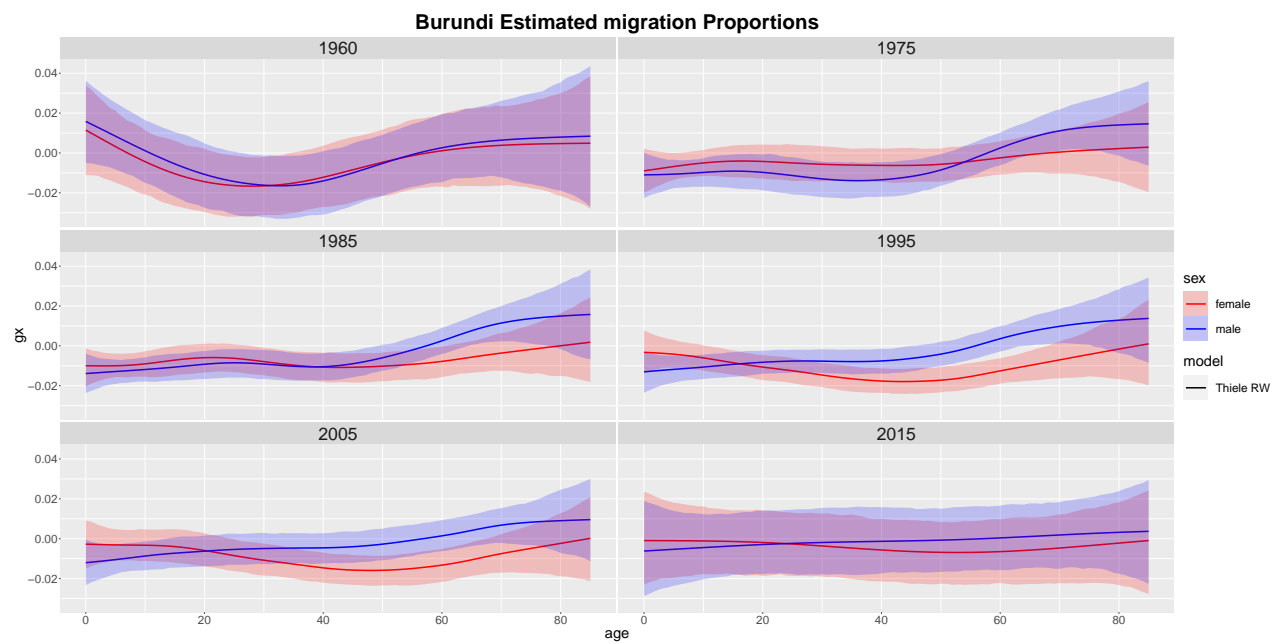


Figure 14: Migration

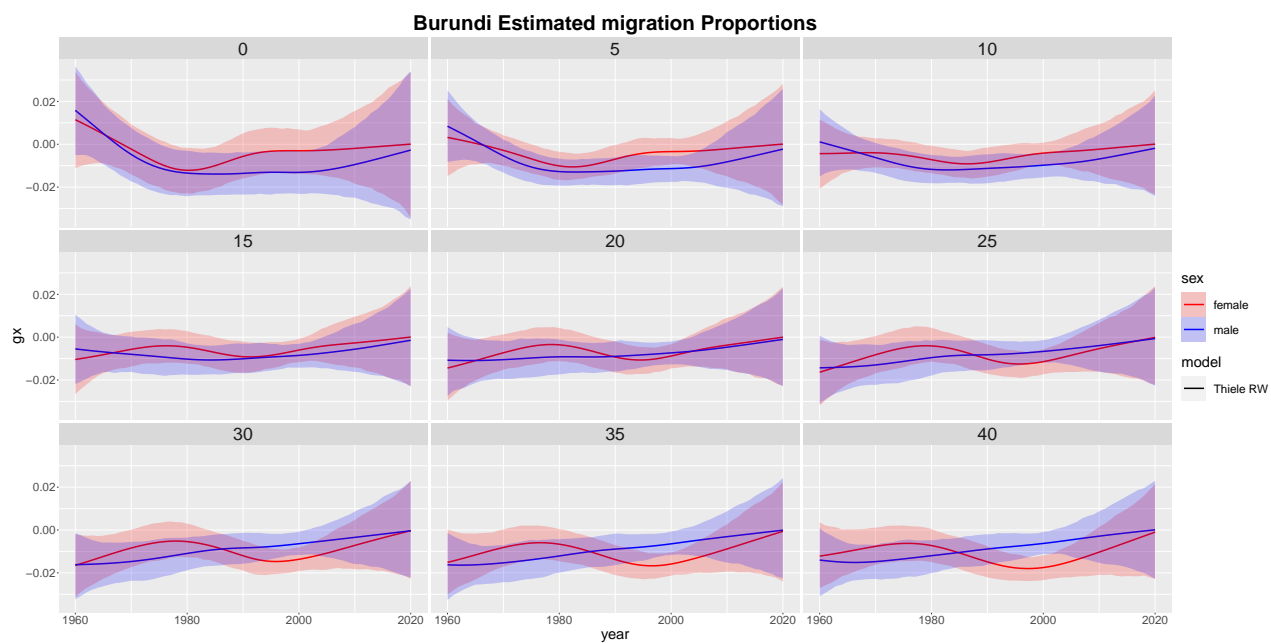


Figure 15: Migration

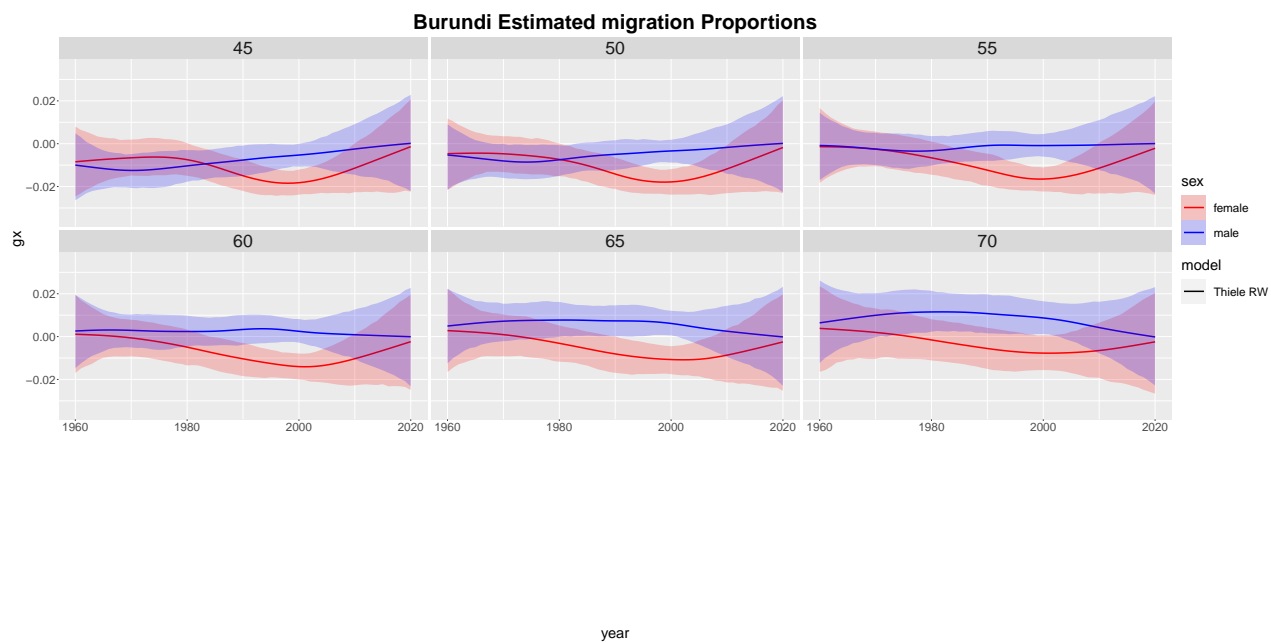


Figure 16: Migration

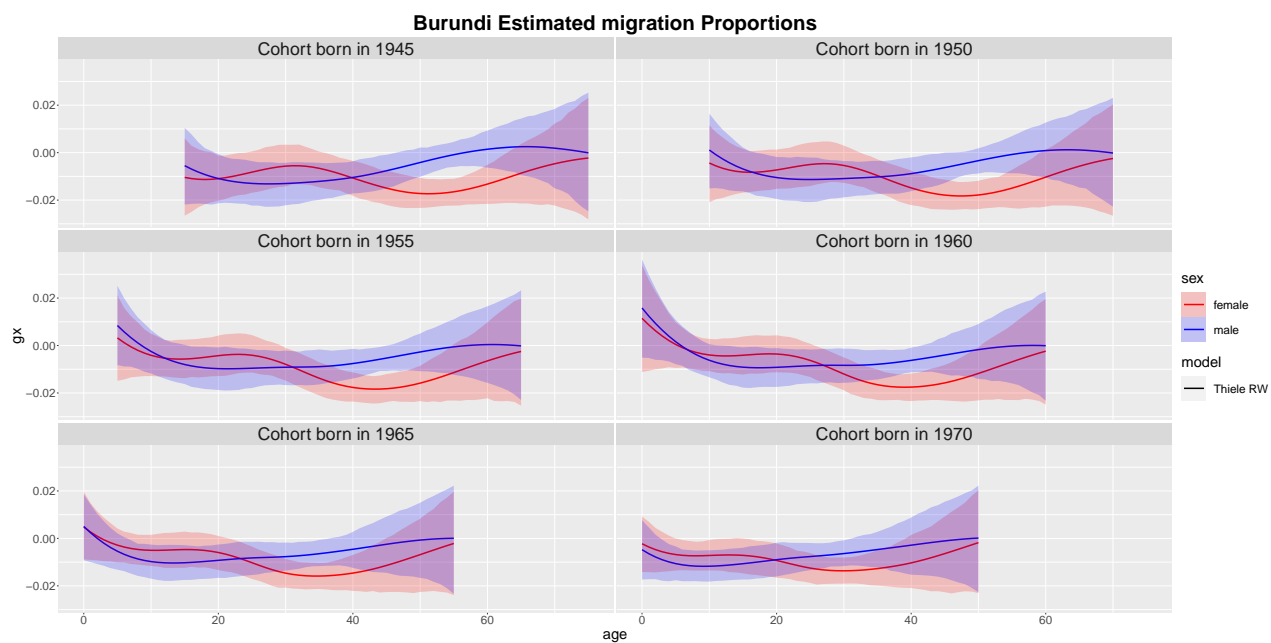


Figure 17: Migration

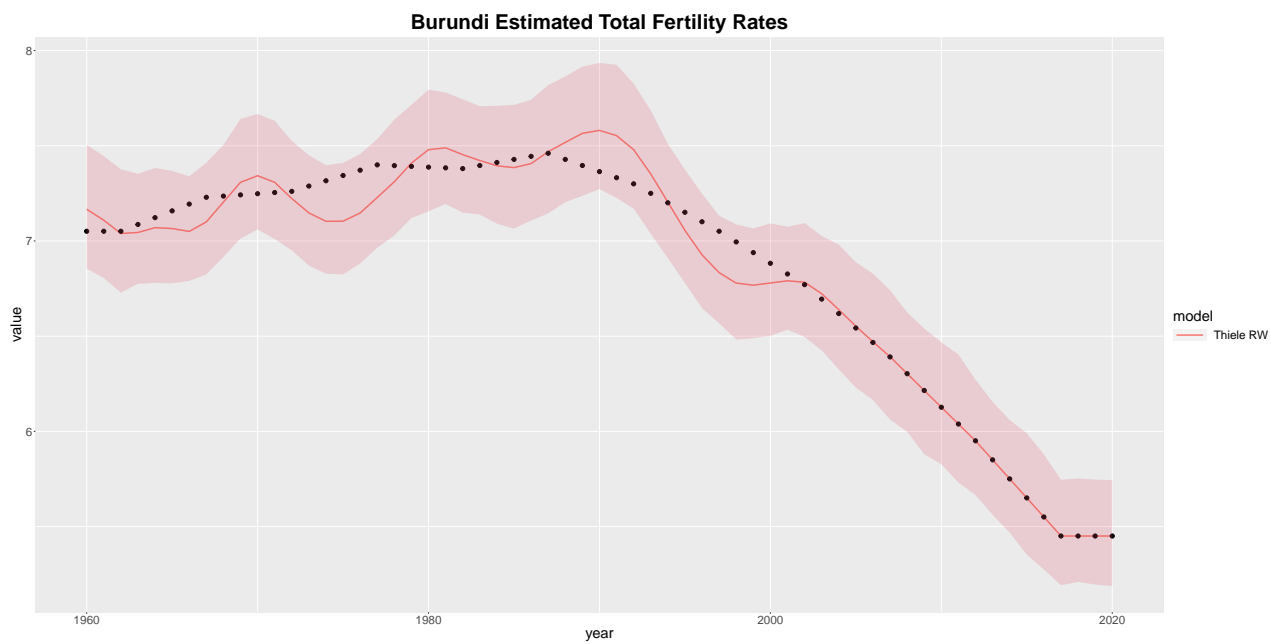


Figure 18: Total Fertility

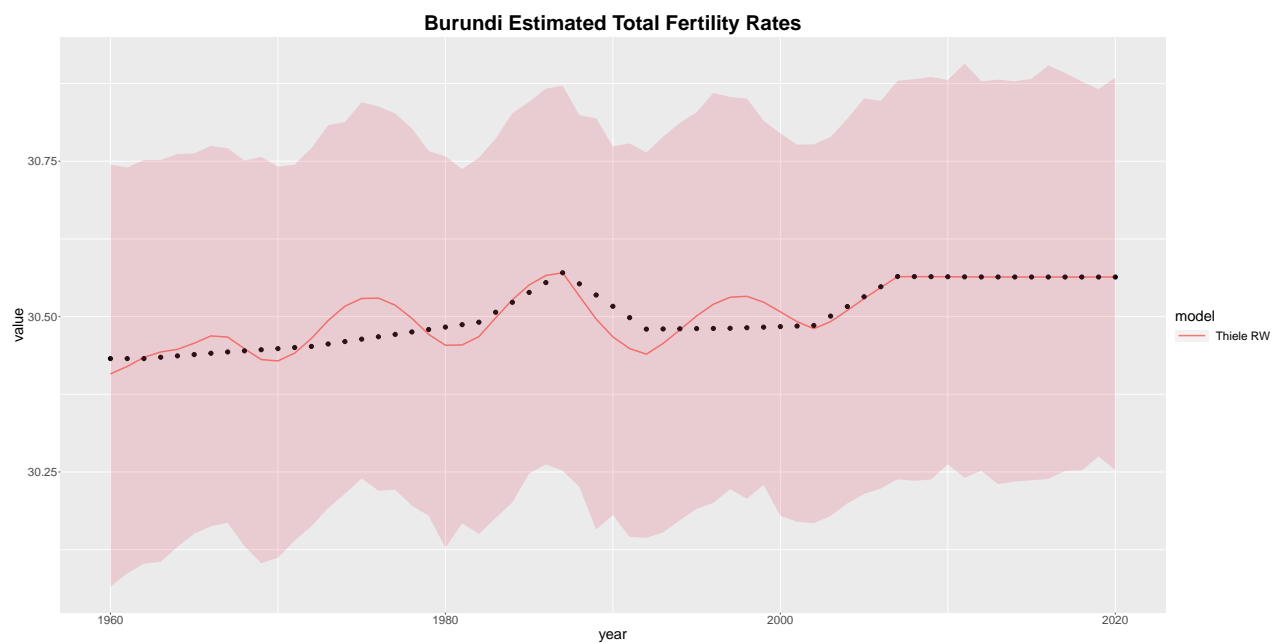


Figure 19: Mean age at births

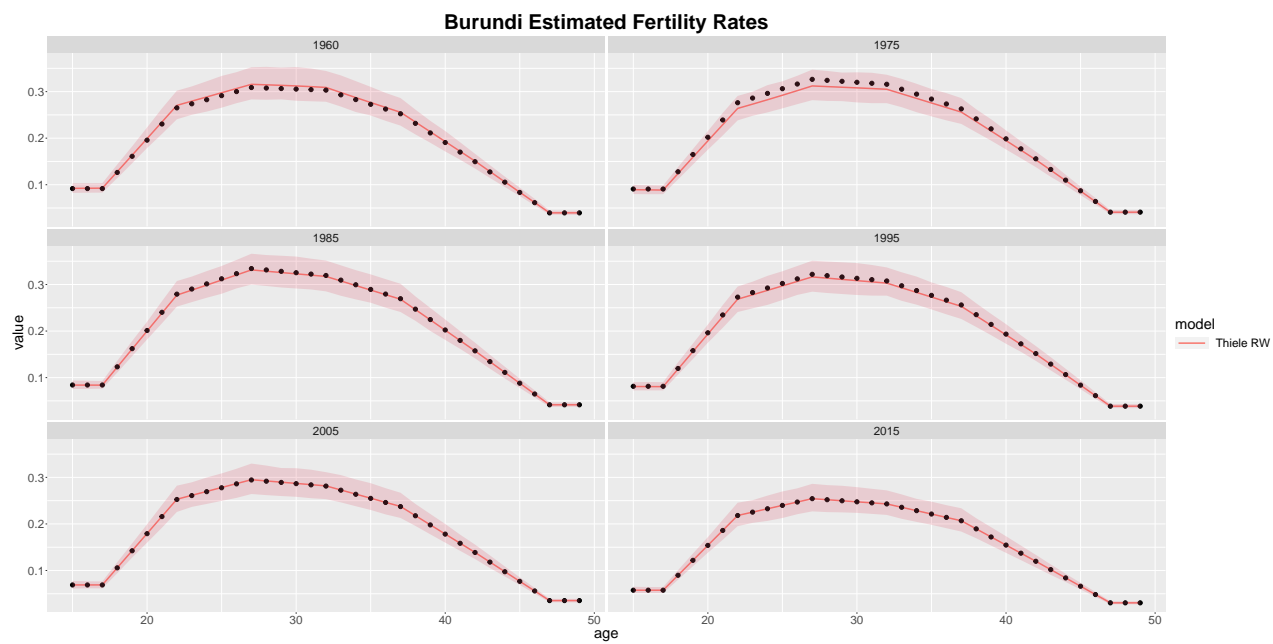


Figure 20: Fertility

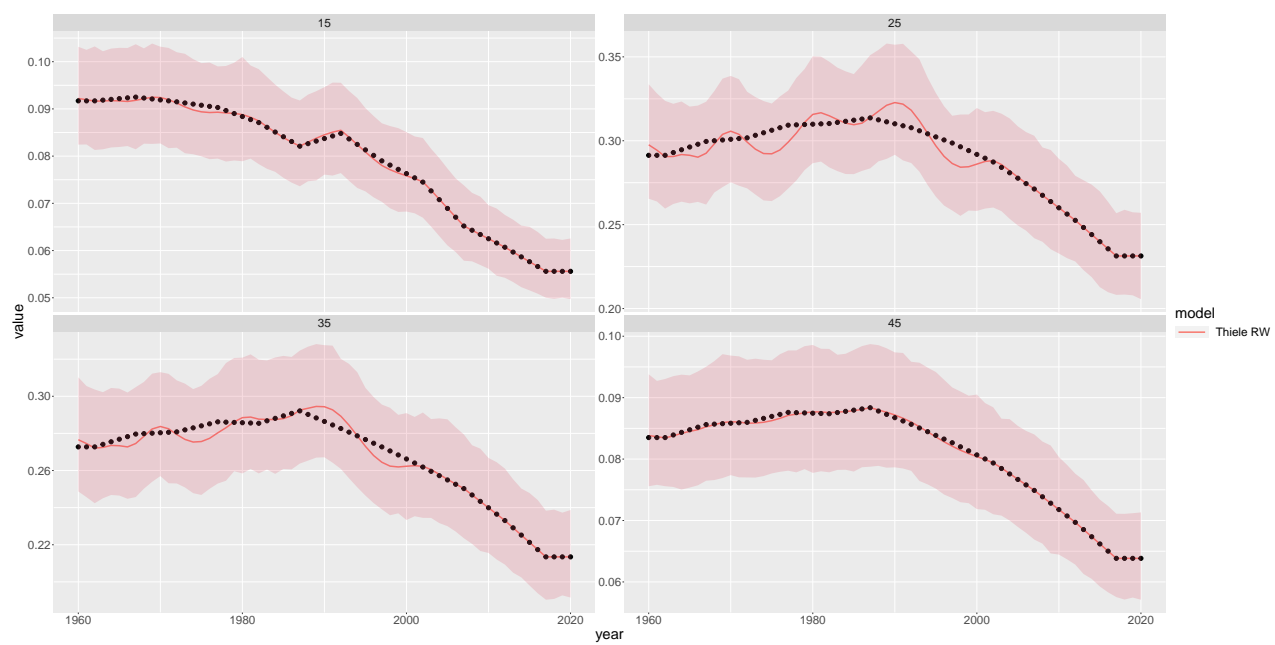


Figure 21: Fertility