

Benin

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

## # A tibble: 86 x 3
##   age `1992` `2002`
##   <dbl> <dbl> <dbl>
## 1     0 80766. 117101.
## 2     1 77155. 105326.
## 3     2 90679. 115866.
## 4     3 92932. 117645.
## 5     4 96435. 119606.
## 6     5 97192. 121055.
## 7     6 92823. 117560.
## 8     7 87527. 113242.
## 9     8 80915. 107590.
## 10    9 73594. 100978.
## # ... with 76 more rows

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

## # A tibble: 18 x 2
##   age `1979`
##   <dbl> <dbl>
## 1     0 351457.
## 2     5 268180.
## 3    10 178950.
## 4    15 142937.
## 5    20 150307.
## 6    25 141563.
## 7    30 111638.
## 8    35  85508.
## 9    40  67925.
## 10   45  55549.
## 11   50  44515.
## 12   55  35211.
## 13   60  30311.
## 14   65  24816.
## 15   70  18851.
## 16   75  12313.
## 17   80  28474.
## 18   85    NA

## [1] "Census Males"

## # A tibble: 86 x 3
##   age `1992` `2002`
##   <dbl> <dbl> <dbl>
## 1     0 81377. 118253.
## 2     1 78137. 107408.
## 3     2 91868. 118379.
## 4     3 94884. 120801.
## 5     4 99304. 123360.
## 6     5 101021. 125036.
```

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## 7      6  97612. 121757.
## 8      7  93579. 118155.
## 9      8  88068. 113250.
## 10     9  81470. 107350.
## # ... with 76 more rows
```

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

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

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

```
## 1      0 351689.
## 2      5 288221.
## 3     10 196031.
## 4     15 126149.
## 5     20 101019.
## 6     25  92613.
## 7     30  81036.
## 8     35  67610.
## 9     40  56596.
## 10    45  48757.
## 11    50  41032.
## 12    55  33835.
## 13    60  29670.
## 14    65  25324.
## 15    70  20368.
## 16    75  13851.
## 17    80  31178.
## 18    85     NA
```

Thiele log-Normal Hump Spline

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

##	log_tau2_logpop	log_tau2_logpop	log_tau2_logpop	log_tau2_logpop	log
##	3.88627338	5.32636126	3.66747458	4.95490497	
##	log_dispersion	log_dispersion	log_lambda_tp	tp_slope	
##	1.12601644	0.94943009	2.80341529	-0.02711963	
##	log_lambda_phi	log_lambda_psi	log_lambda_A	log_lambda_B	log_la
##	11.31480287	11.27493523	11.29266372	10.83733523	
##	log_lambda_epsilon				
##	4.67753837				

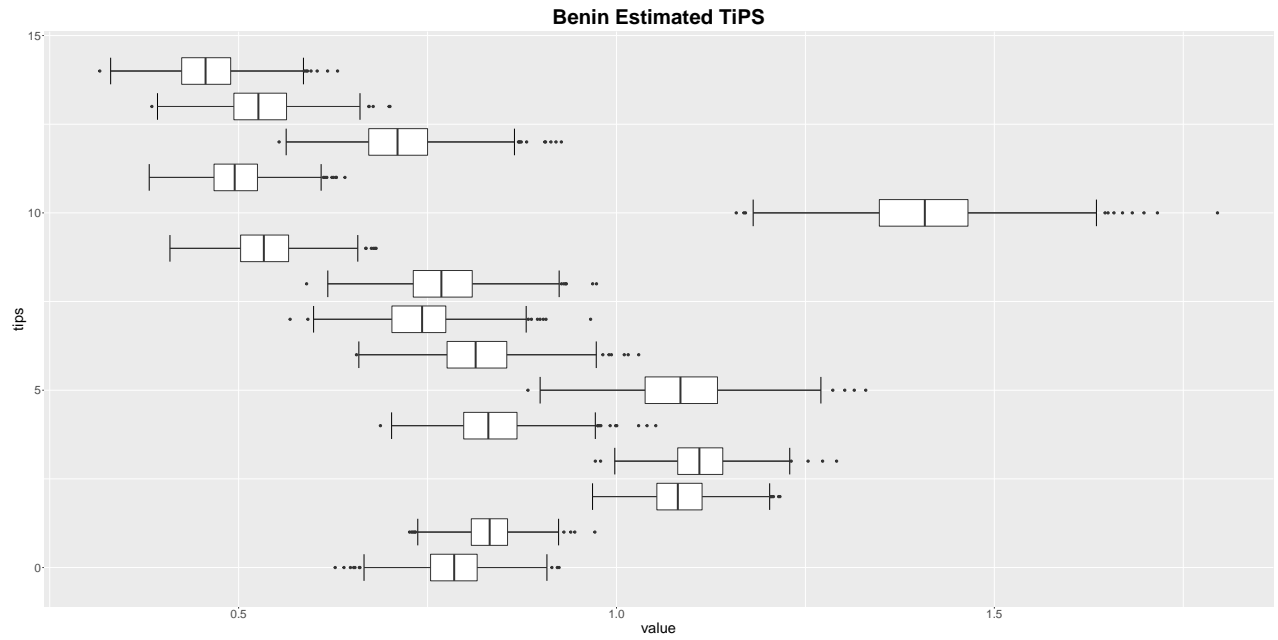


Figure 1: Estimated TiPS

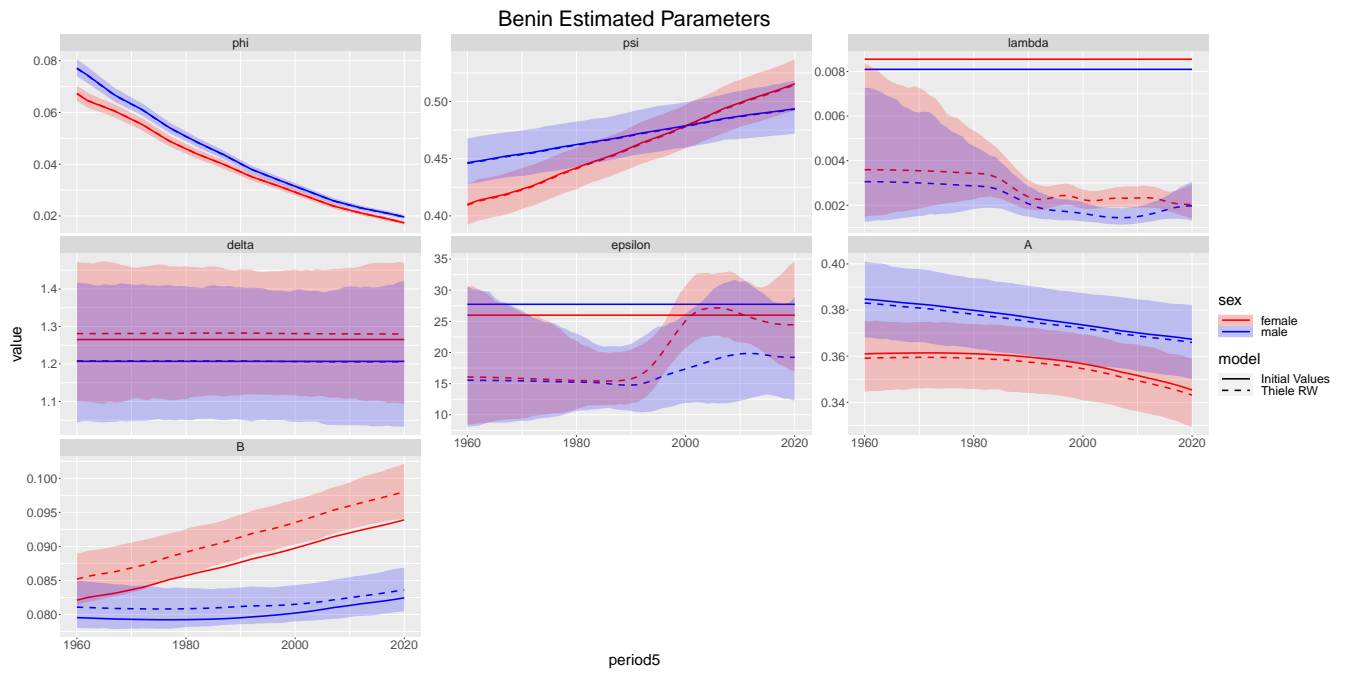


Figure 2: Estimated parameters

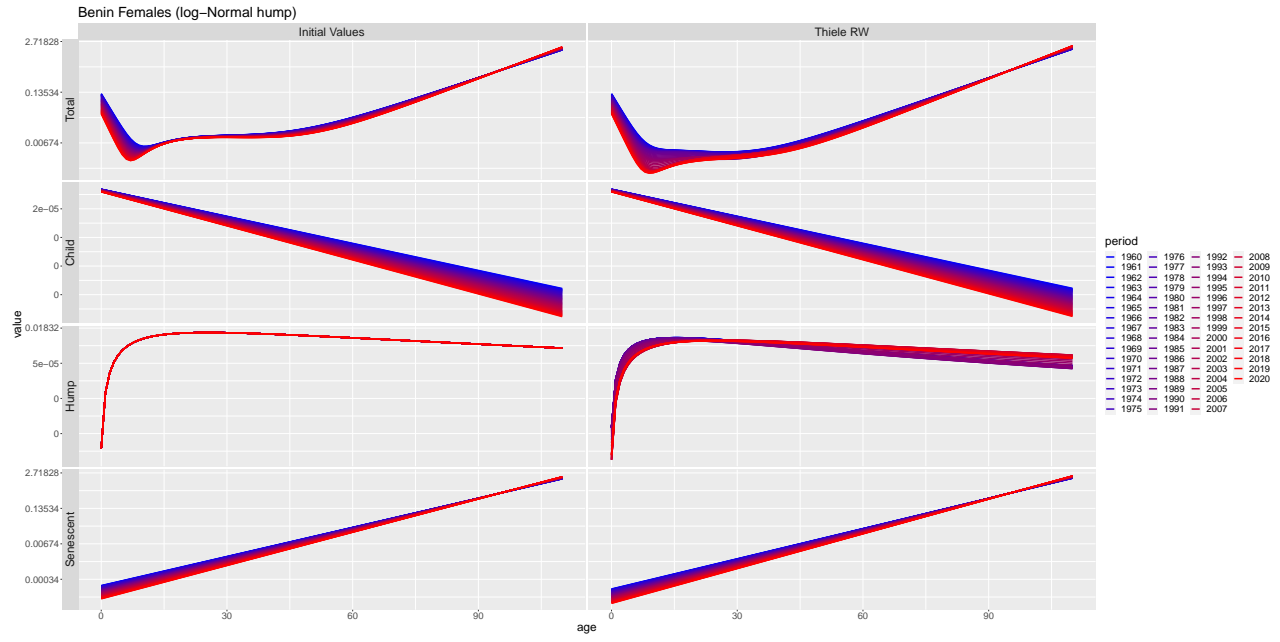


Figure 3: Thiele Decomposed

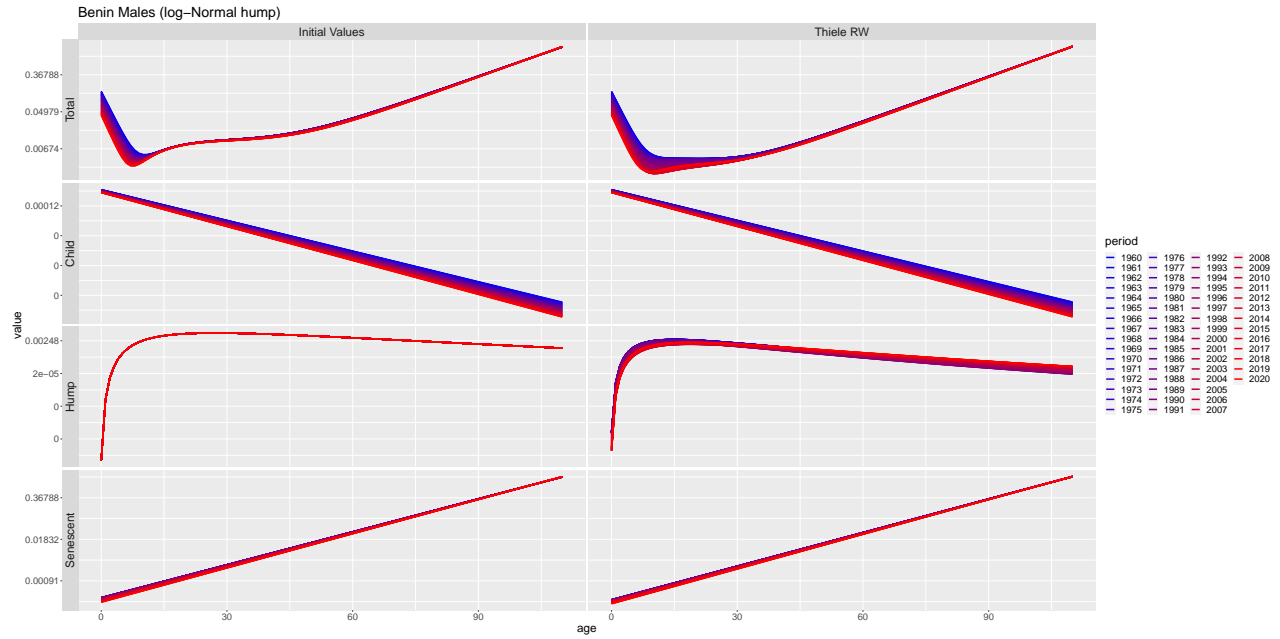


Figure 4: Thiele Decomposed

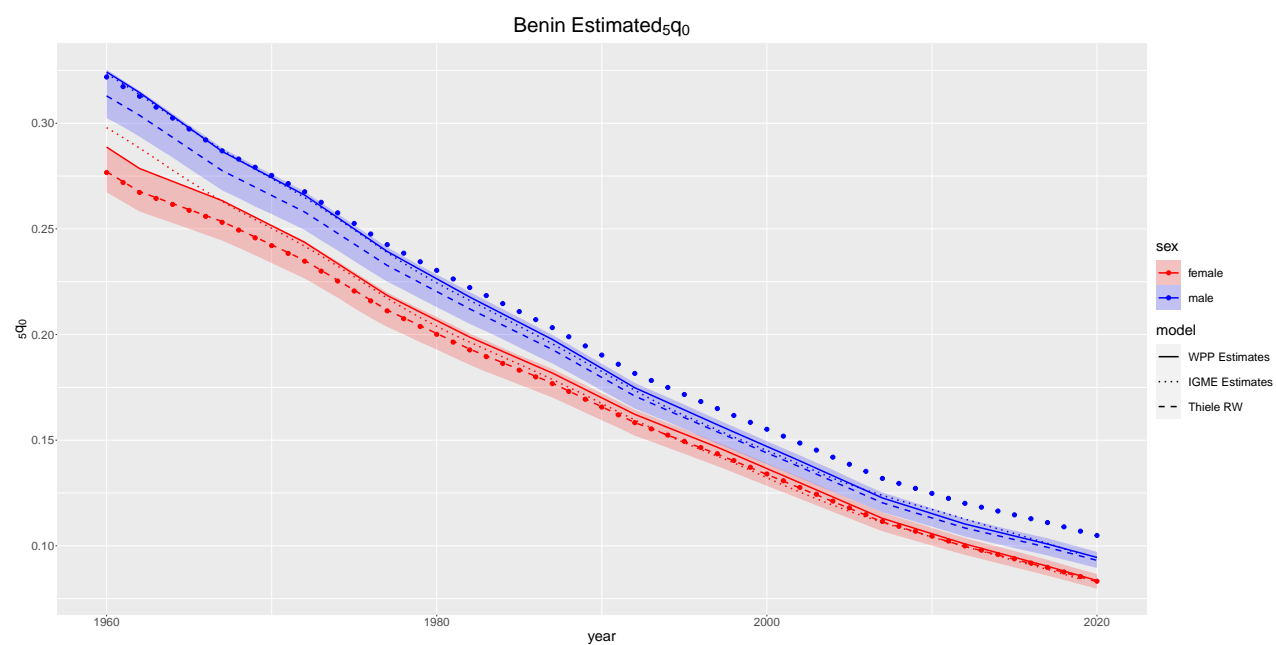


Figure 5: Estimated ${}_5q_0$

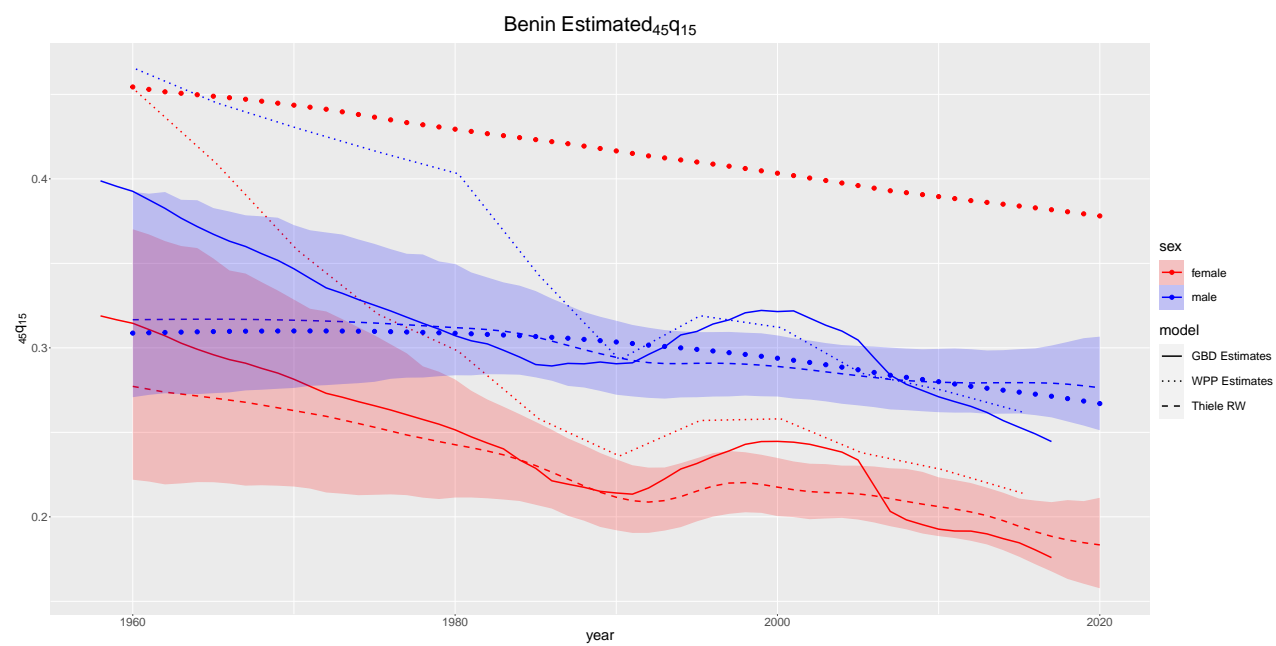


Figure 6: Estimated ${}_{45}q_{15}$

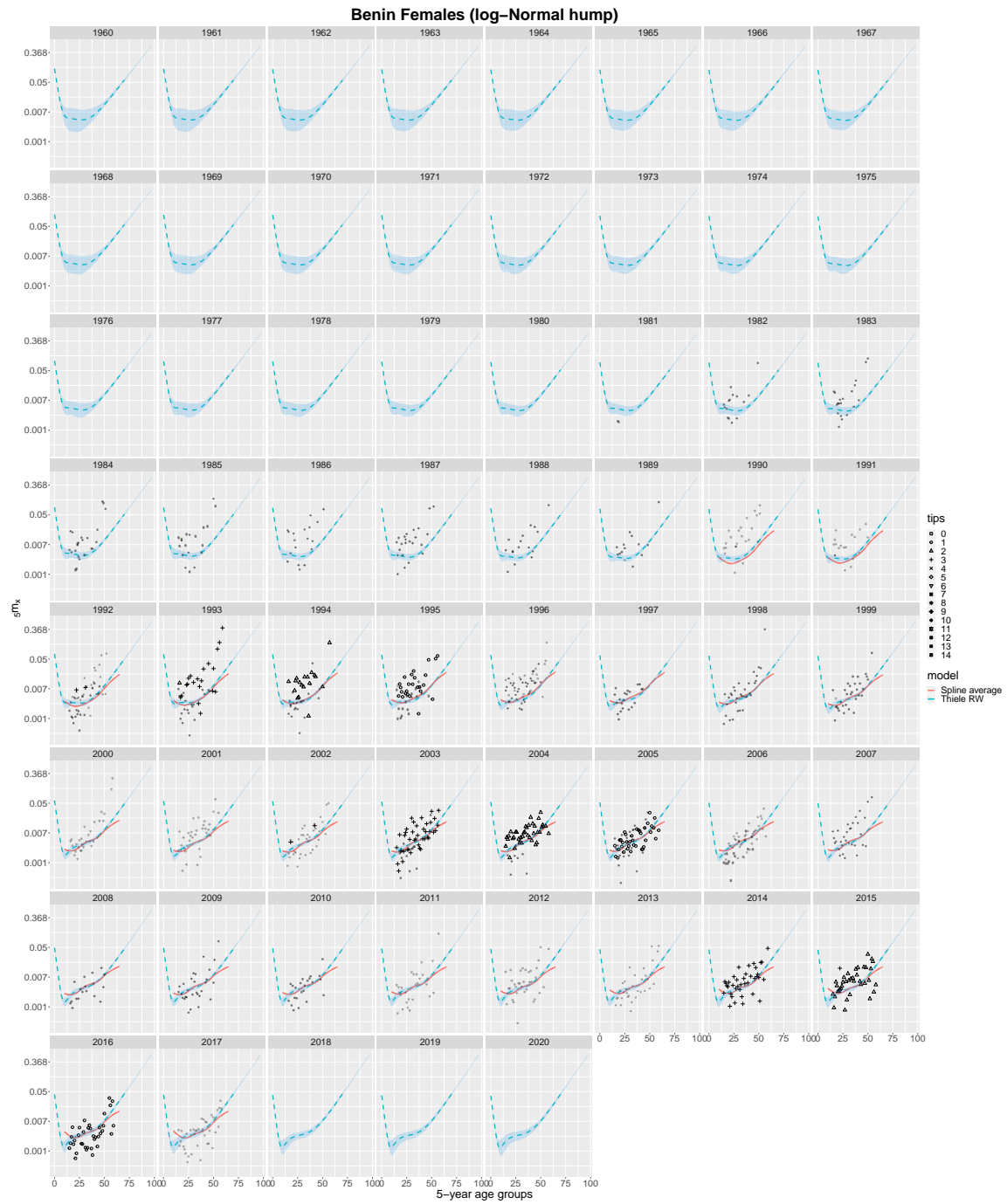


Figure 7: Mortality Schedules

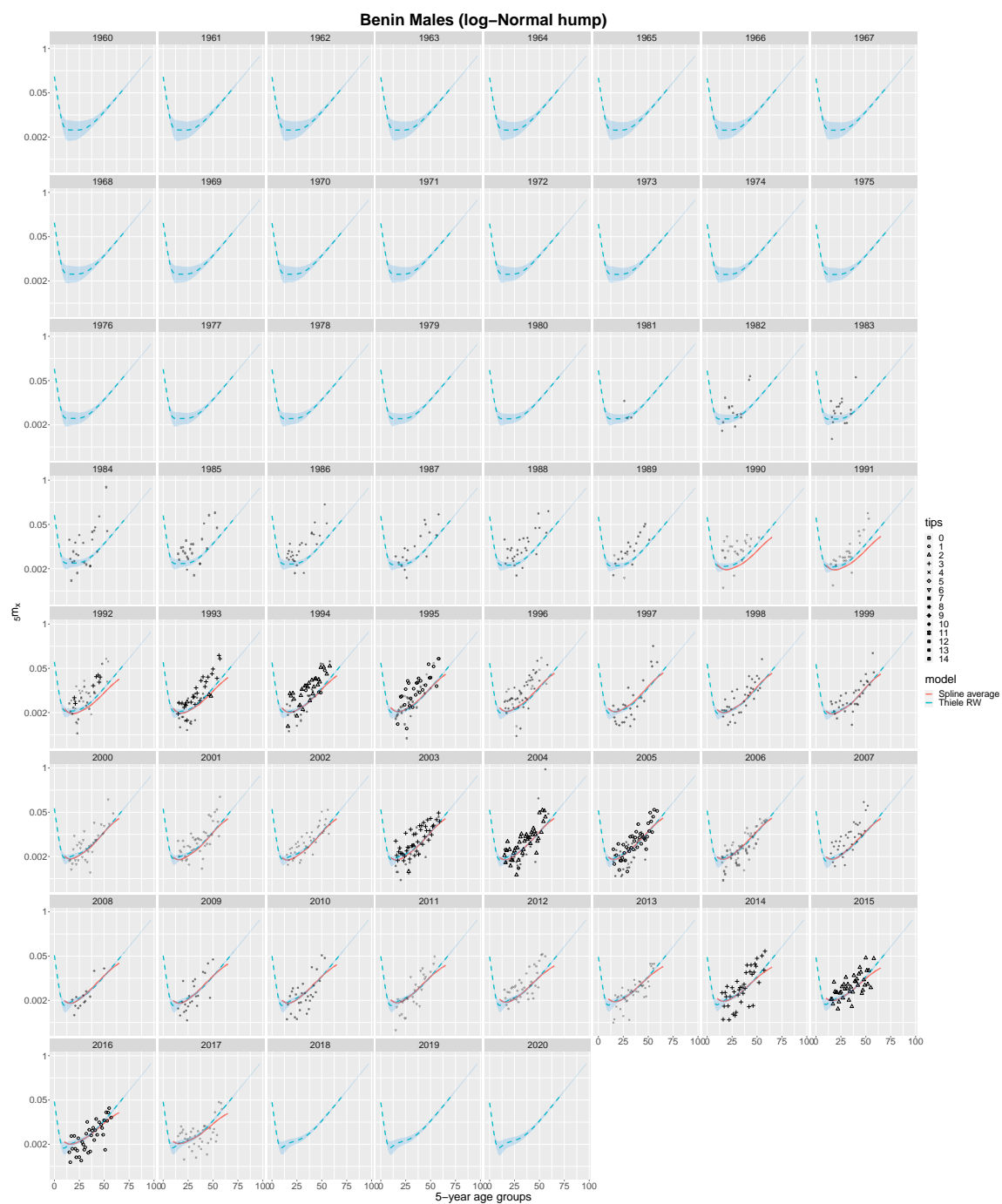


Figure 8: Mortality Schedules

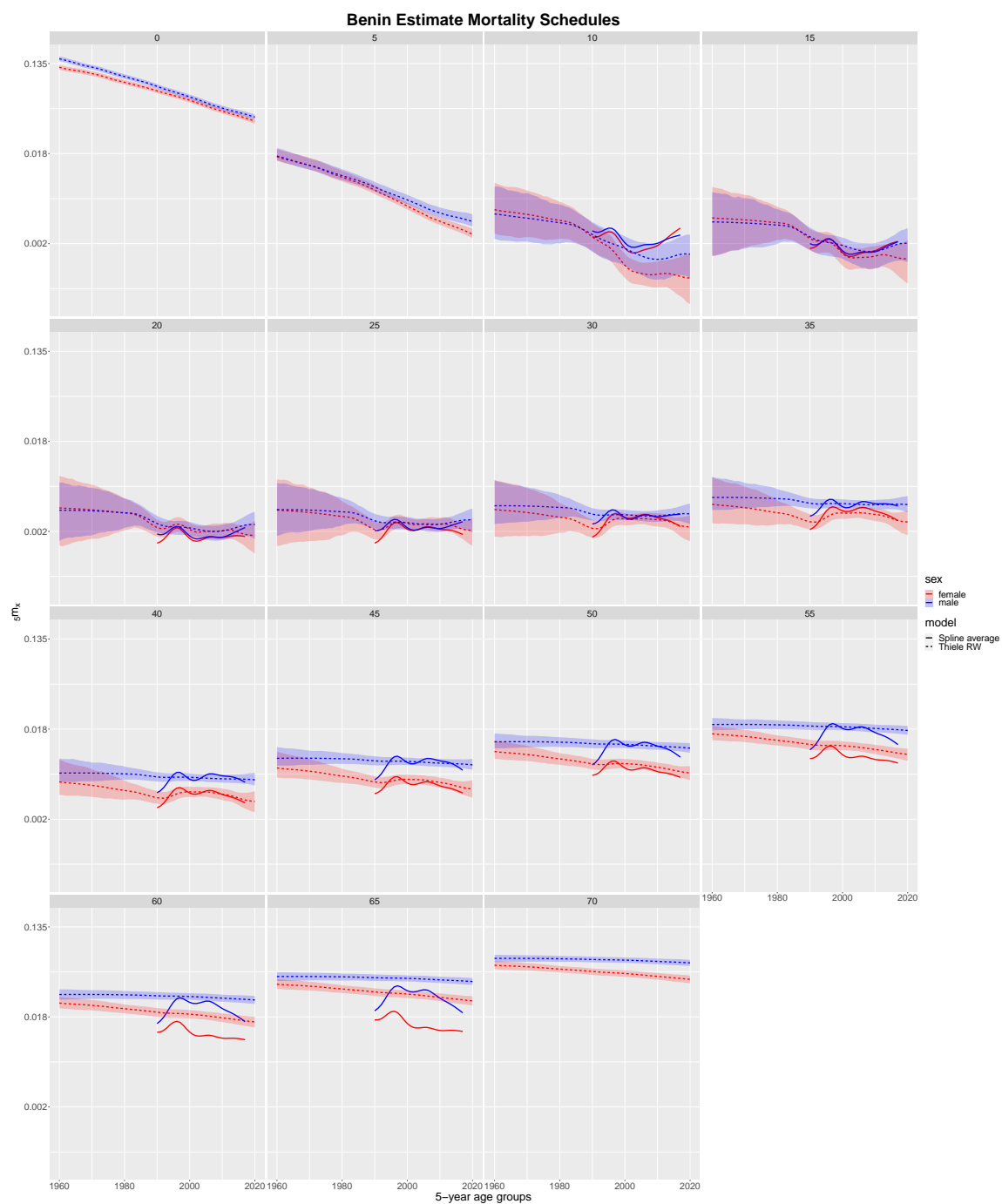


Figure 9: Mortality Schedules

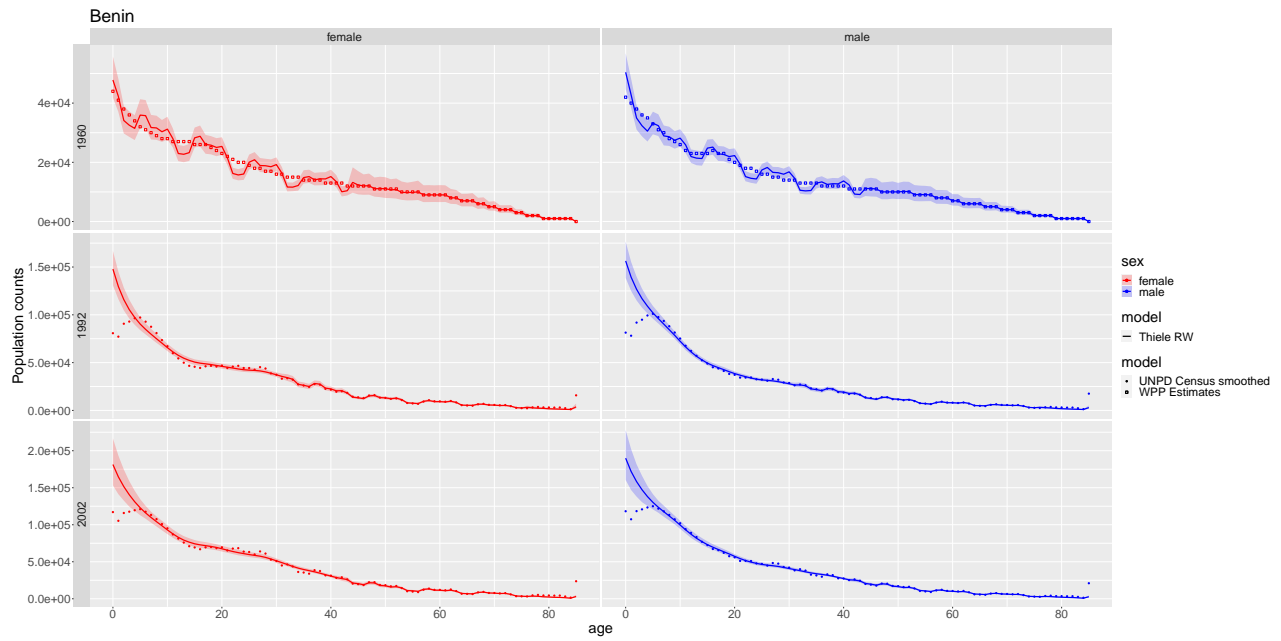


Figure 10: Population

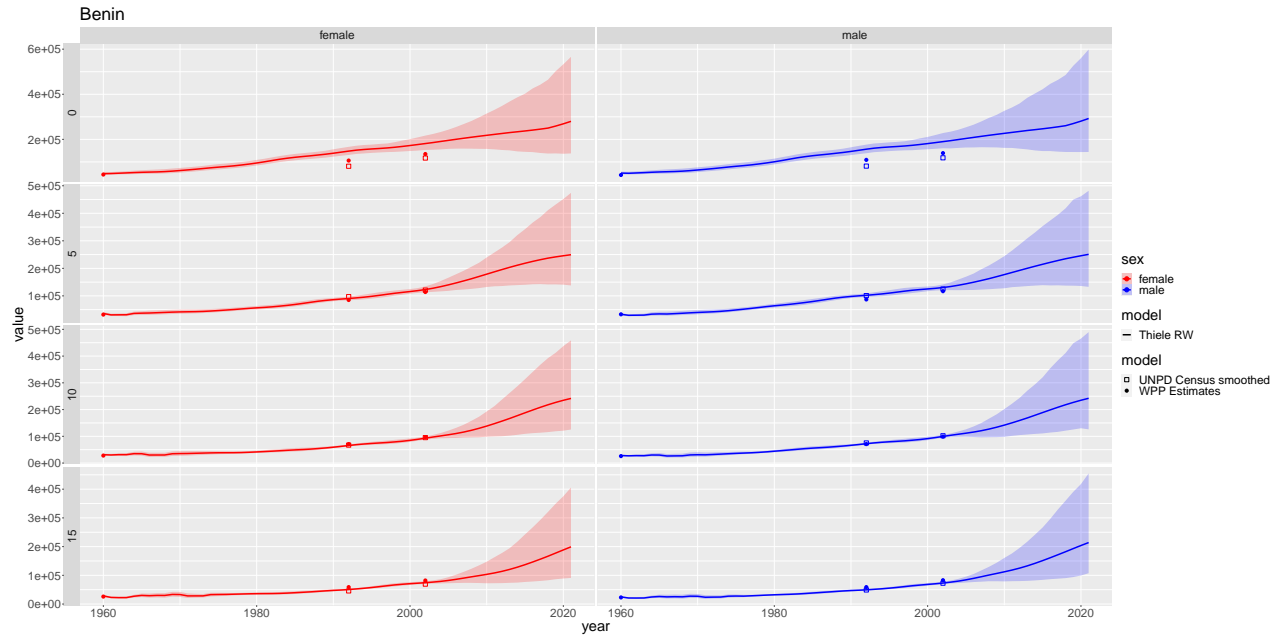


Figure 11: Population



Figure 12: Population

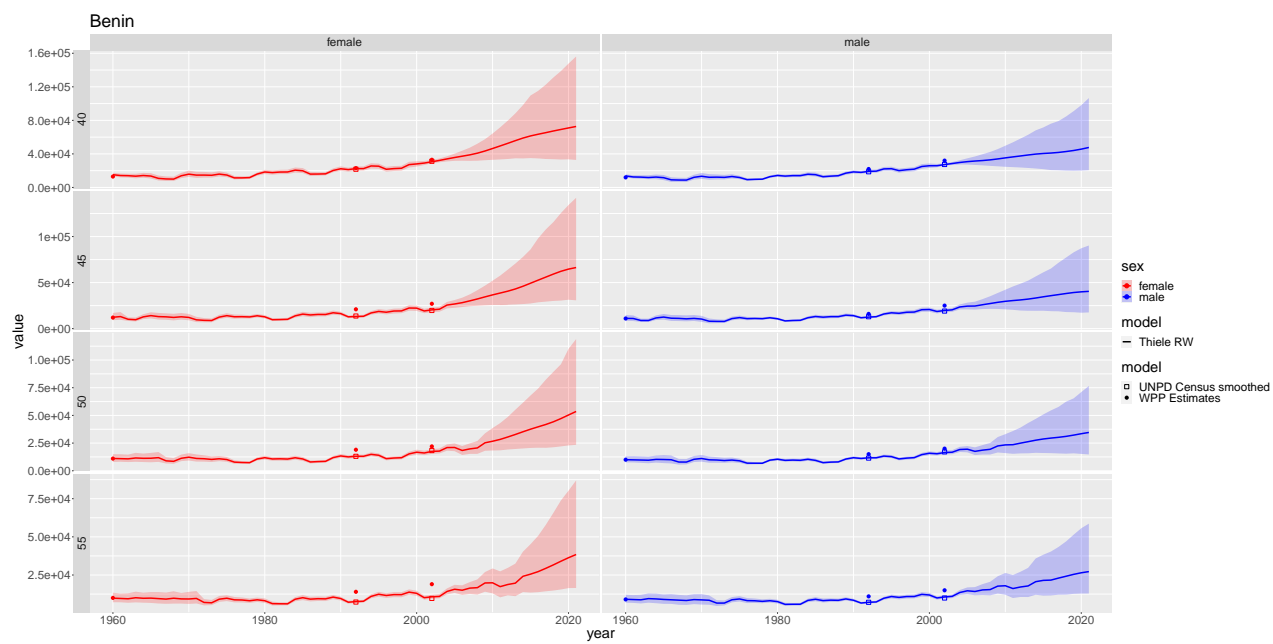


Figure 13: Population

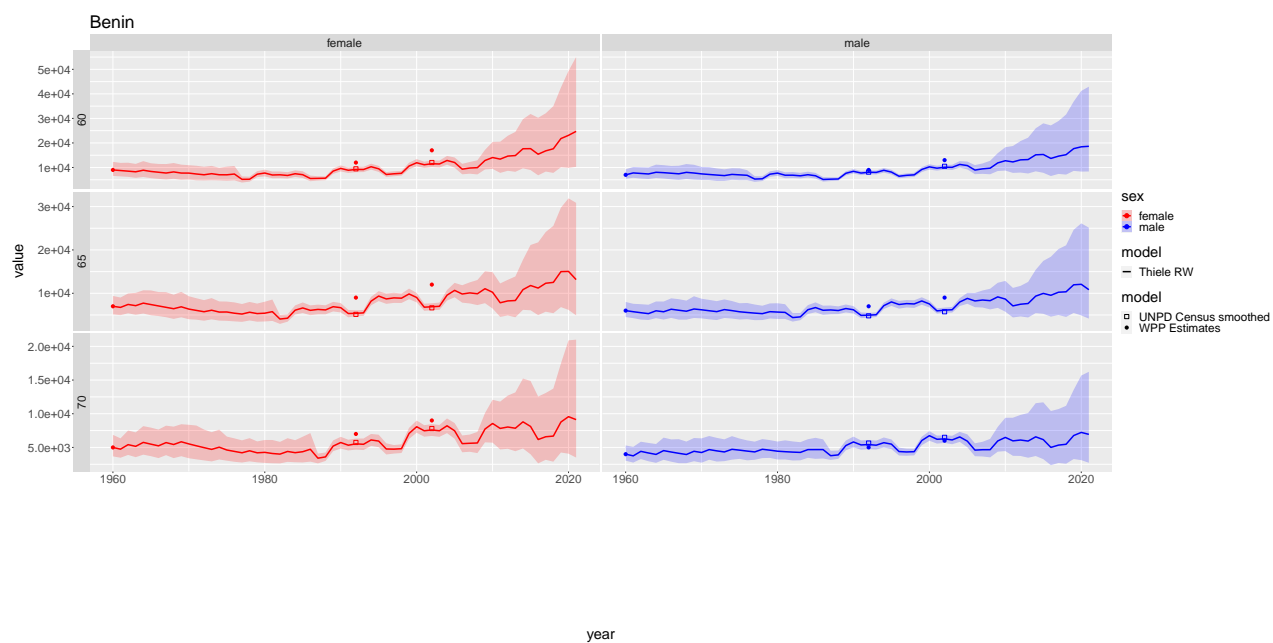


Figure 14: Population

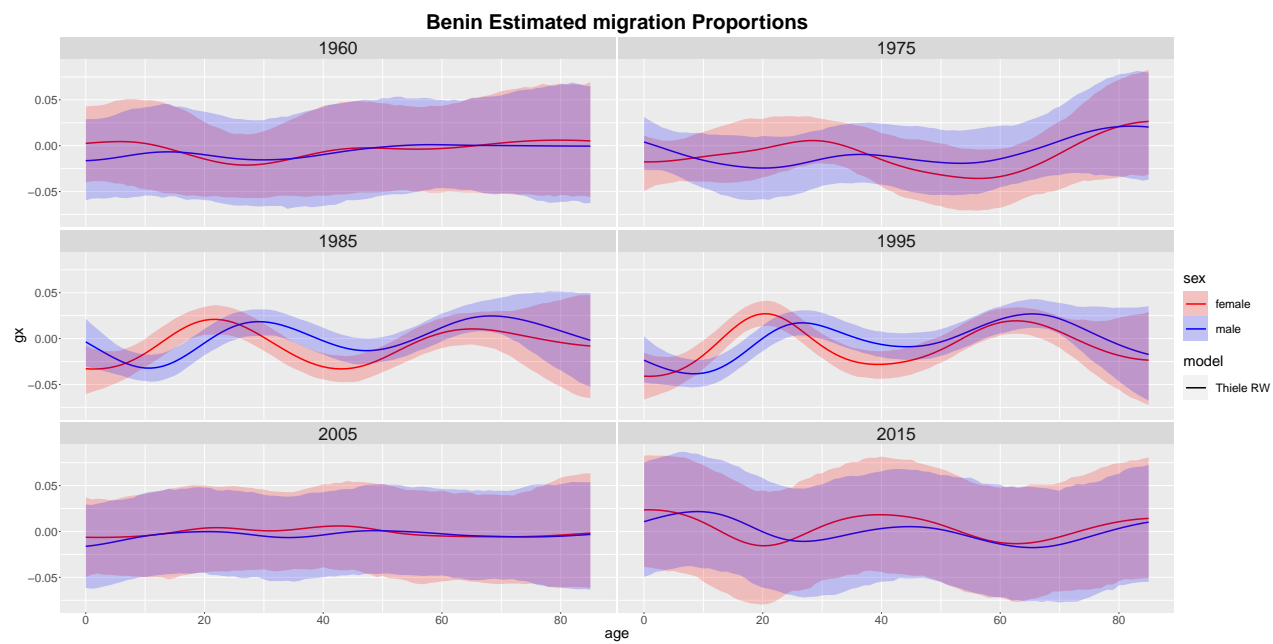


Figure 15: Migration

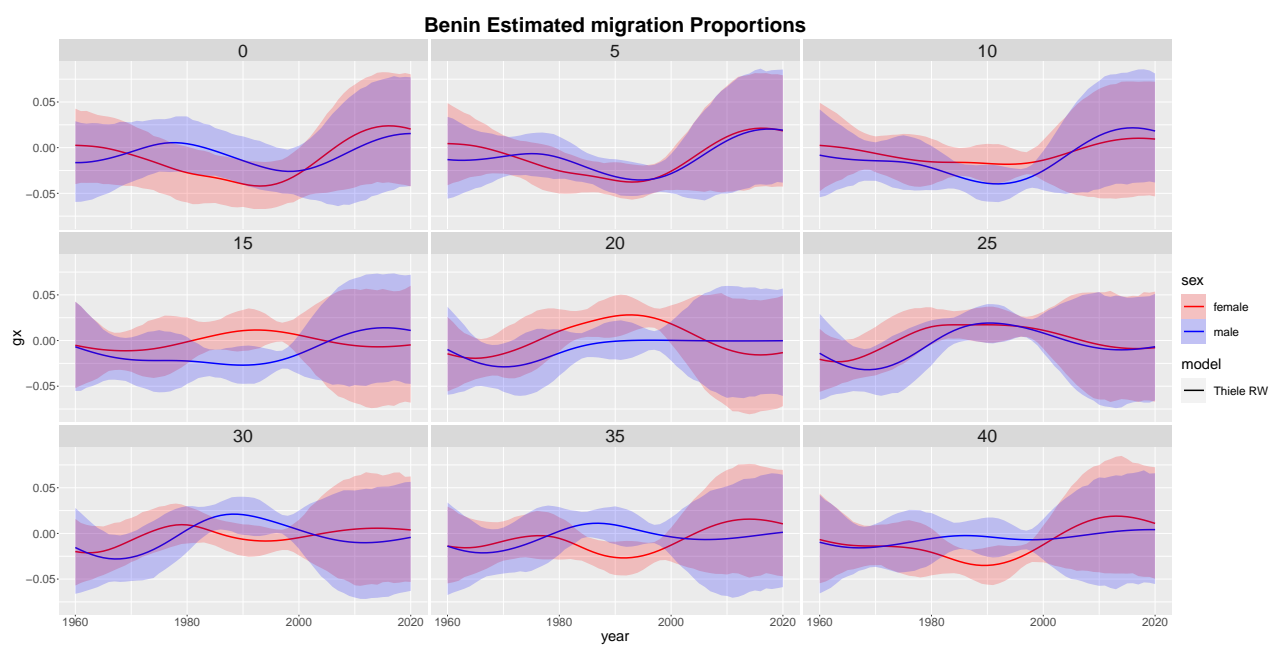


Figure 16: Migration

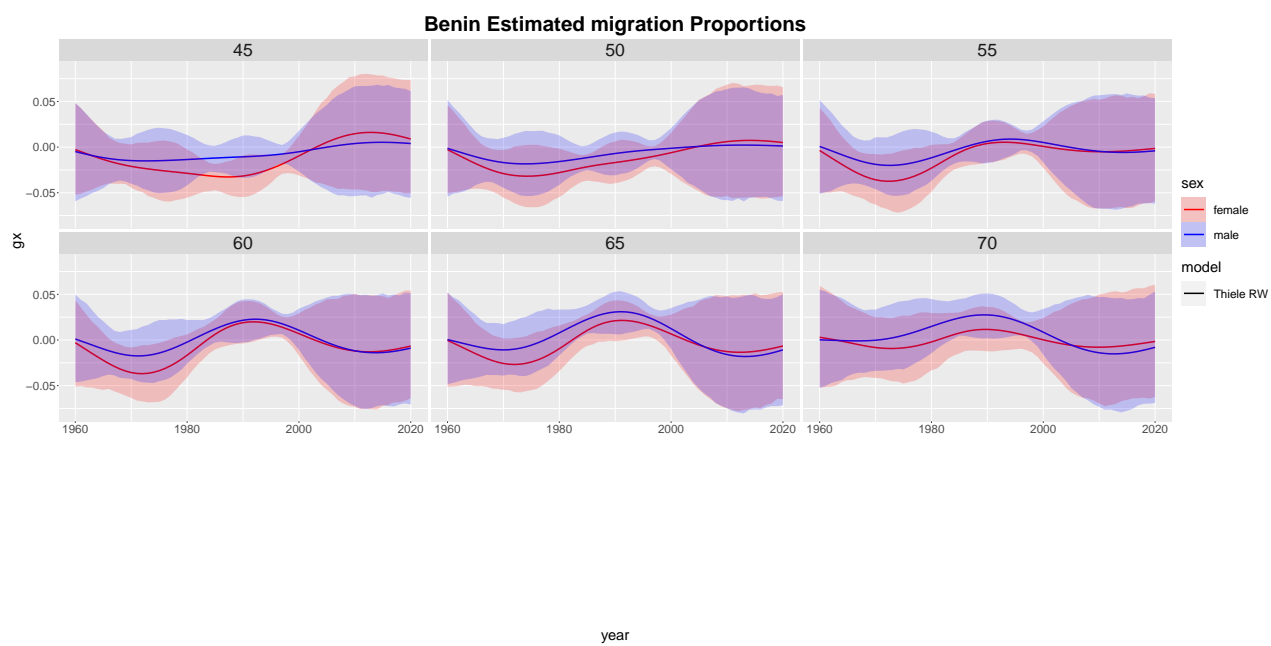


Figure 17: Migration

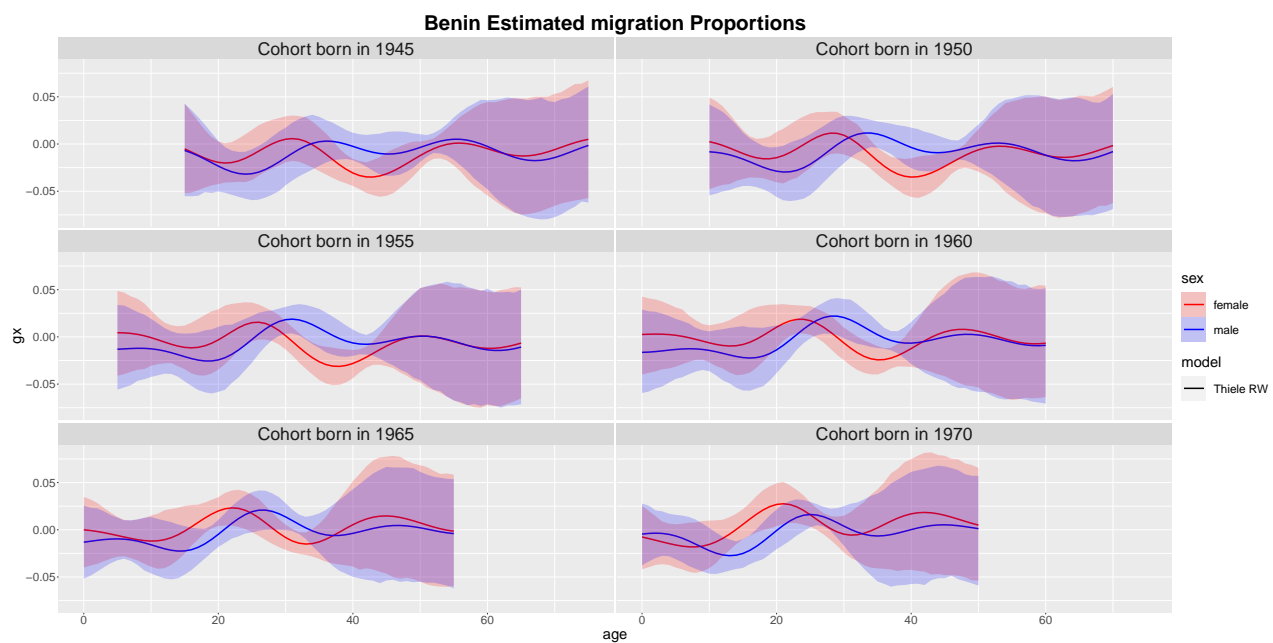


Figure 18: Migration

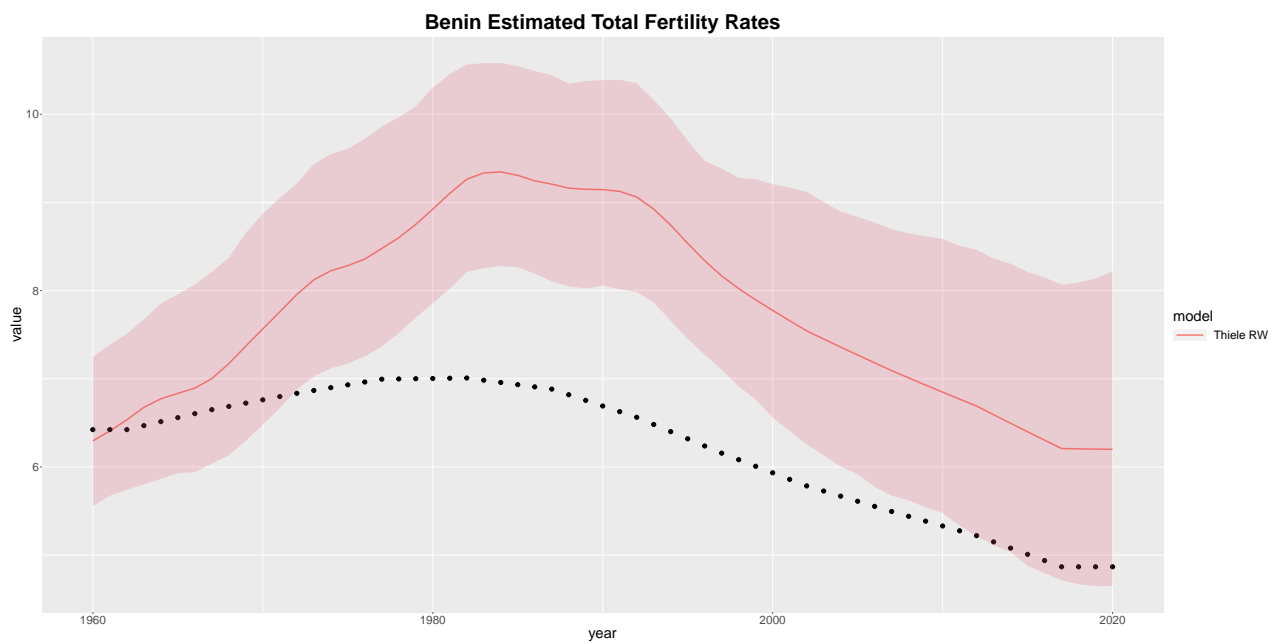


Figure 19: Total Fertility

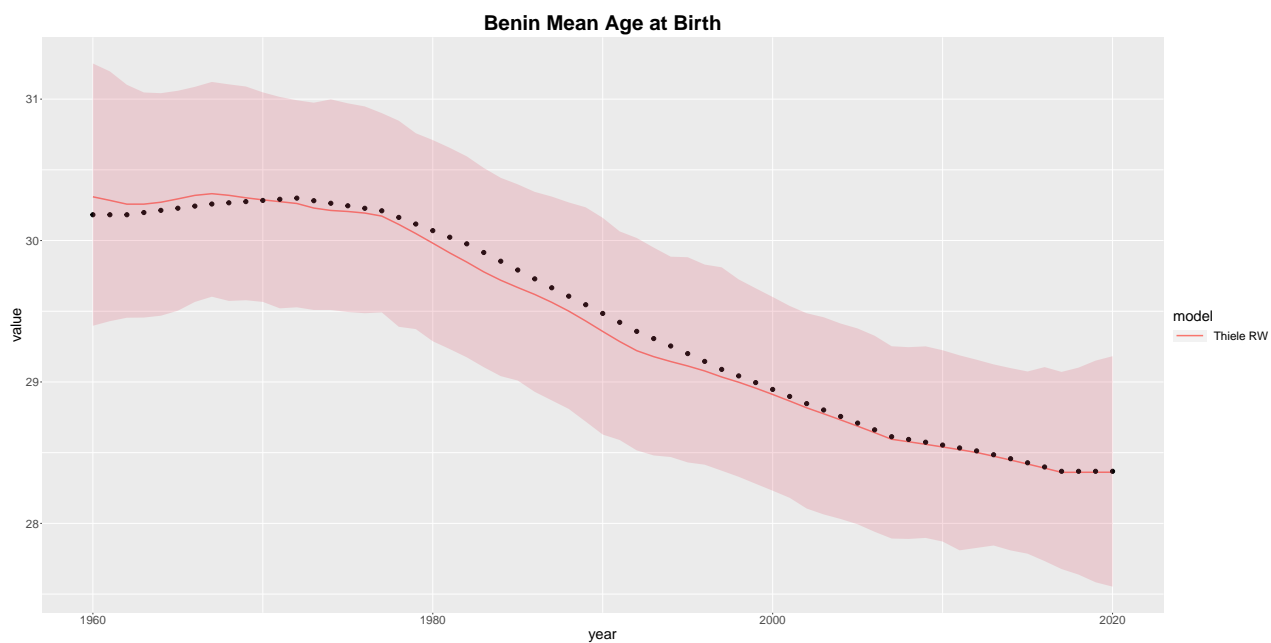


Figure 20: Mean age at births

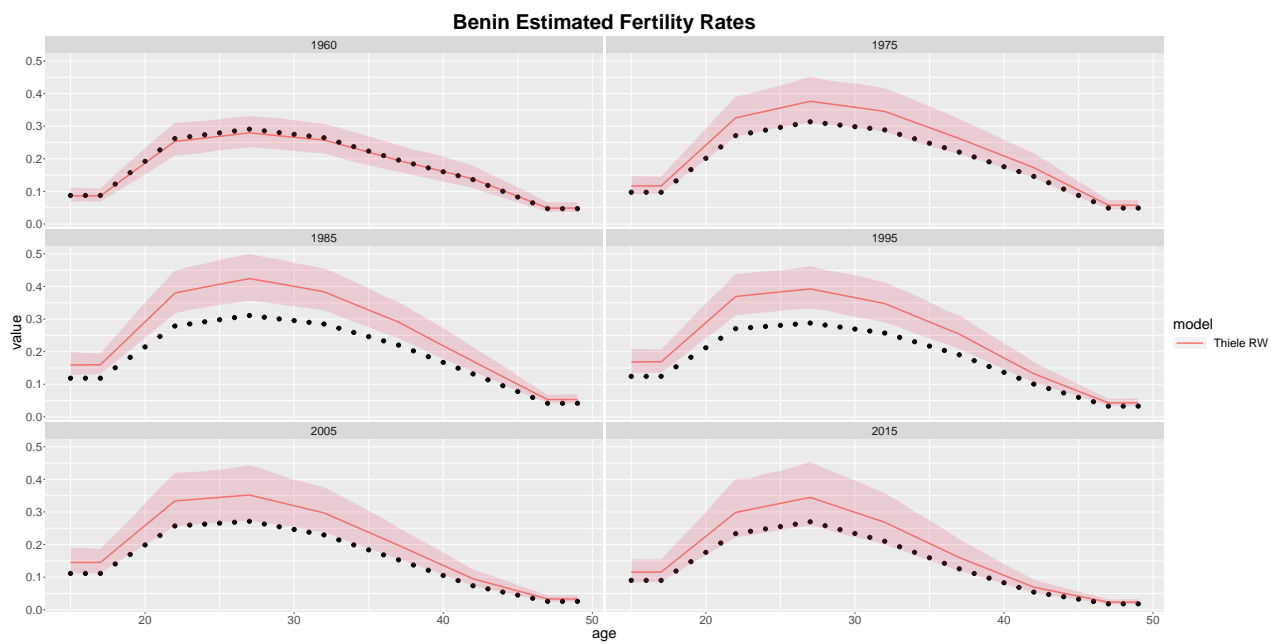


Figure 21: Fertility

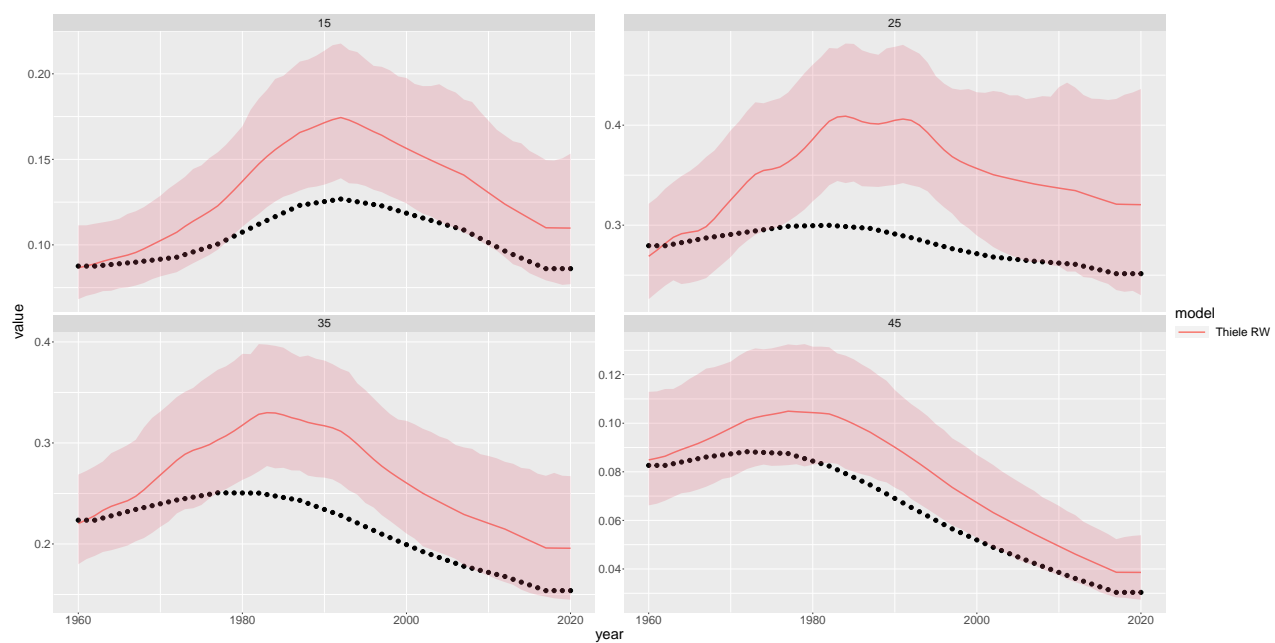


Figure 22: Fertility