

**Multistage carcinogenesis and the incidence of thyroid cancer in the US by sex, race, stage and histology**

**Supplementary information**

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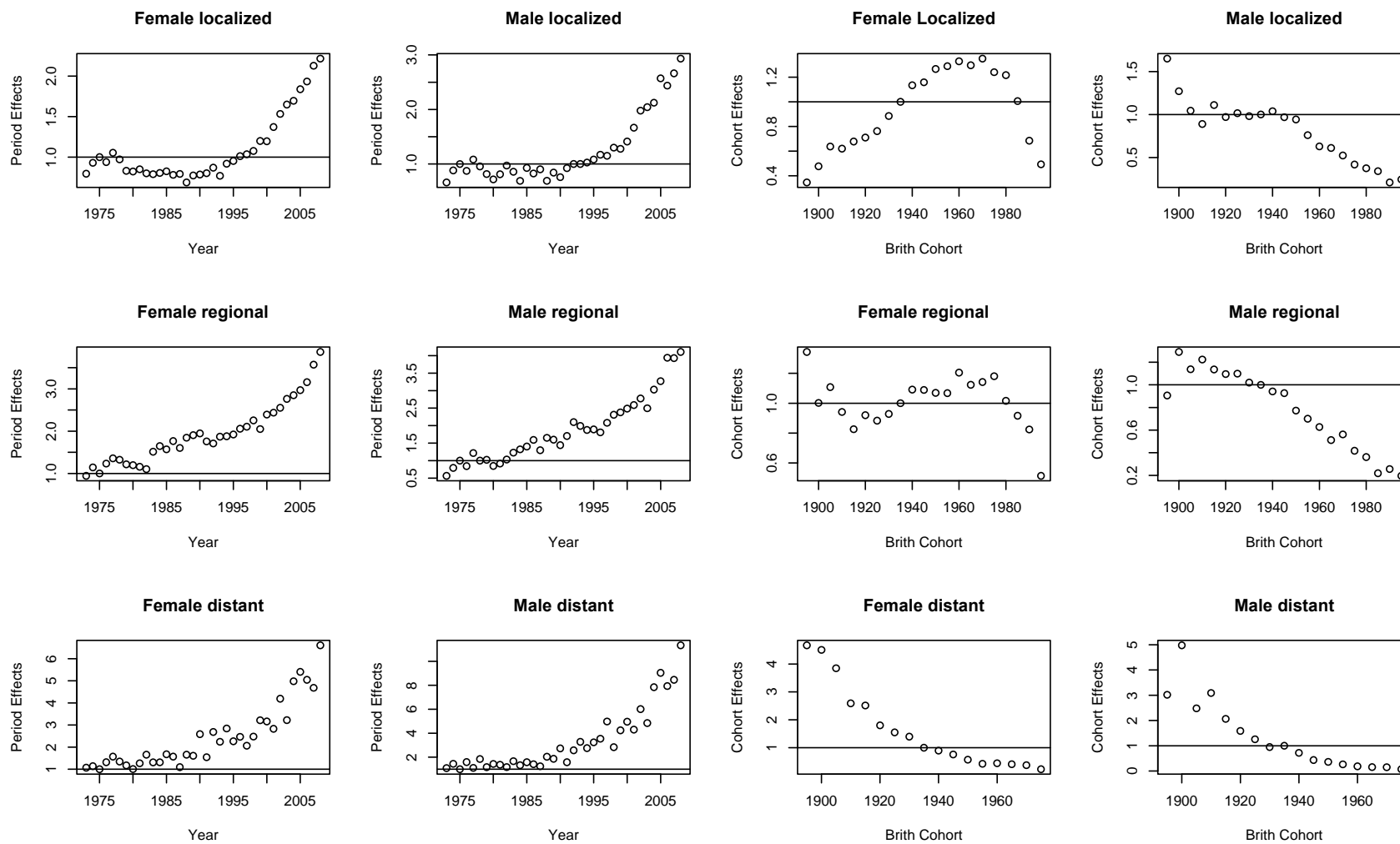
**Table 1s. Trends of thyroid cancer incidence by gender, race, histology and stage –Joinpoint analyses 1973-2010**

	Trend 1		Trend 2		Trend 3		Trend 4		Trend 5	
	Period 1	APC (95% CI)	Period 2	APC (95% CI)	Period 3	APC (95% CI)	Period 4	APC (95% CI)	Period 5	APC (95% CI)
<b>Both Sexes</b>										
All Races	1973-1977	5.5 (2.4,8.7)	1977-1980	-6.7 (-15.2, 2.6)	1980-1997	2.5 (2.1, 2.8)	1997-2010	6.5 (5.9, 7.0)		
White	1973-1977	6.1 (2.8, 9.4)	1977-1980	-6.1 (-14.8, 3.5)	1980-1996	2.6 (2.2, 3.0)	1996-2010	6.6 (6.1, 7.0)		
Black	1973-1989	-0.7 (-1.9, 0.6)	1989-2010	5.1 (4.2, 6.0)						
Other	1973-1996	-1.3 (-1.9, -0.6)	1996-2010	4.0 (2.6, 5.4)						
<b>Men</b>										
All Races	1973-1977	8.1 (2.2, 14.2)	1977-1980	-9.2 (-23.8, 8.2)	1980-1998	2.1 (1.5, 2.7)	1998-2010	5.6 (4.5, 6.7)		
White	1973-1977	8.7 (3.3, 14.4)	1977-1980	-9.3 (-22.7, 6.5)	1980-1998	2.6 (2.0, 3.2)	1998-2010	5.9 (4.9, 6.9)		
Black	1973-2010	2.5 (1.6, 3.5)								
Other	1973-1990	-4.8 (-6.4, -3.1)	1990-2010	1.6 (0.2, 3.0)						
<b>Women</b>										
All Races	1973-1977	5.1 (1.7, 8.6)	1977-1980	-5.5 (-14.8, 4.8)	1980-1996	2.5 (2.1, 3.0)	1996-2010	6.6 (6.0, 7.1)		
White	1973-1977	5.8 (2.1, 9.7)	1977-1980	-4.9 (-15.1, 6.6)	1980-1995	2.5 (2.0, 3.1)	1995-2010	6.8 (6.3, 7.3)		
Black	1973-1988	-1.3 (-2.7, 0.0)	1988-2010	5.3 (4.5, 6.1)						
Other	1973-1983	-3.7 (-5.7, -1.60)	1983-1986	15.7 (-11.9, 51.9)	1986-1991	-7.2 (-14.9, 1.1)	1991-2010	3.3 (2.5, 4.2)		
Papillary	1973-1977	7.7 (3.9, 11.60)	1977-1980	-6.6 (16.6, 4.5)	1980-1996	3.3 (2.8, 3.8)	1996-2010	6.9 (6.4, 7.5)		
Follicular	1973-1999	-0.4 (-0.8, 0.1)	1999-2010	3.3 (1.5, 5.1)						
Other	1973-2010	0.2 (-0.3, 0.6)								
Localized	1973-1975	15.8 (-2.1, 36.8)	1975-1990	-1.2 (-2.0, -0.4)	1990-2010	6.6 (6.1, 7.1)				
Regional	1973-1977	10.4 (6.1, 14.9)	1977-1981	-6.1 (-11.8, 0.0)	1981-1985	12.2 (5.4, 19.5)	1985-1999	1.7 (1.0, 2.4)	1999-2010	6.4 (5.5, 7.3)
Distant	1973-1986	-2.5 (-4.8, -0.2)	1986-2010	2.6 (1.6, 3.5)						

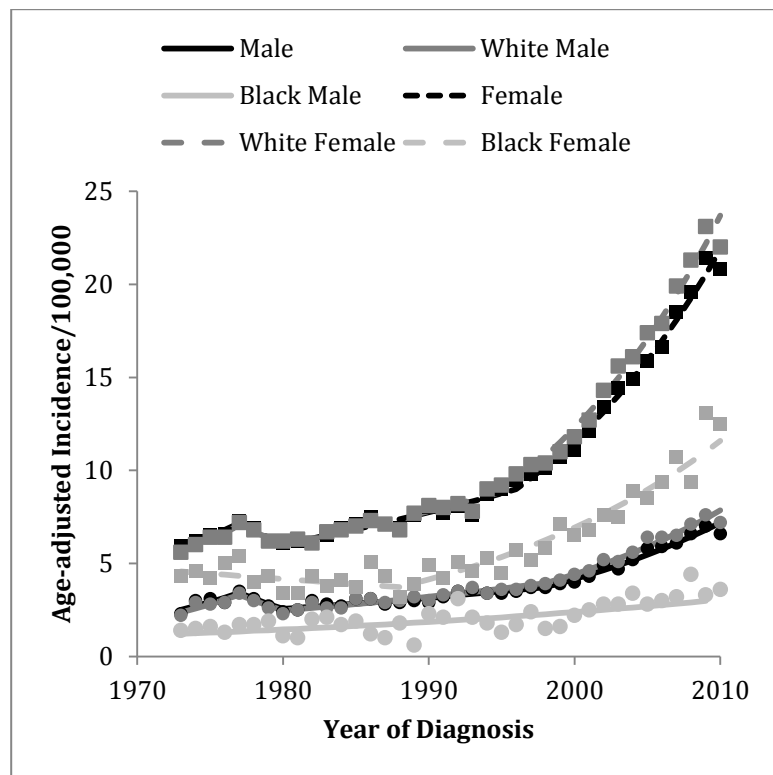
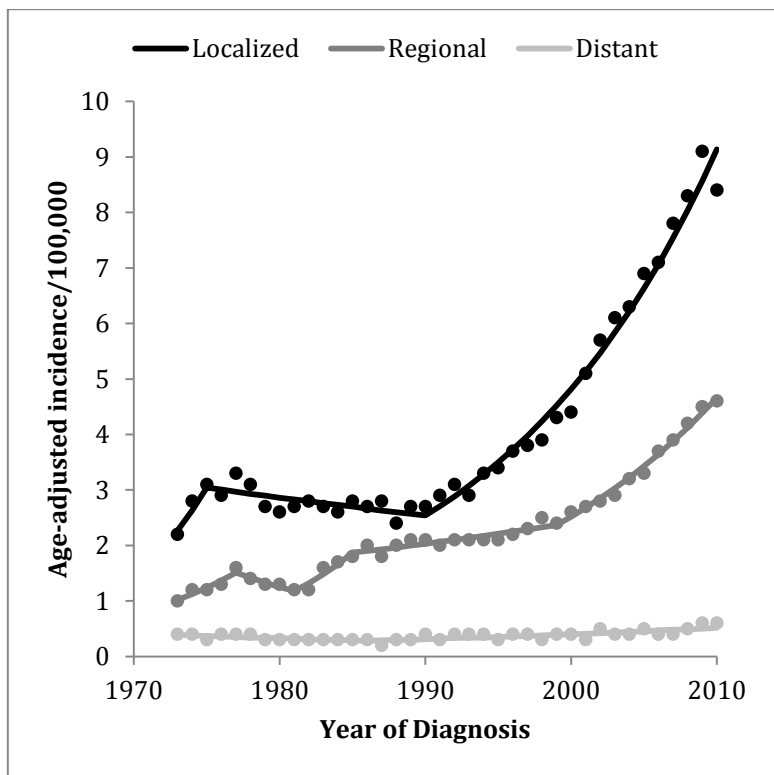
apc: annual percentage change

<sup>a</sup>. significant at p<0.05

**Figure 1s. Thyroid cancer incidence period and cohort trends by gender and stage – TSCE-P-C thyroid cancer model**



**Figure 2s. Thyroid cancer age-adjusted incidence rates by gender, race and stage**



**Table 2s. Akaike information criteria (AIC\*) values for Age-Period-Cohort models relative to the AC model\*\***

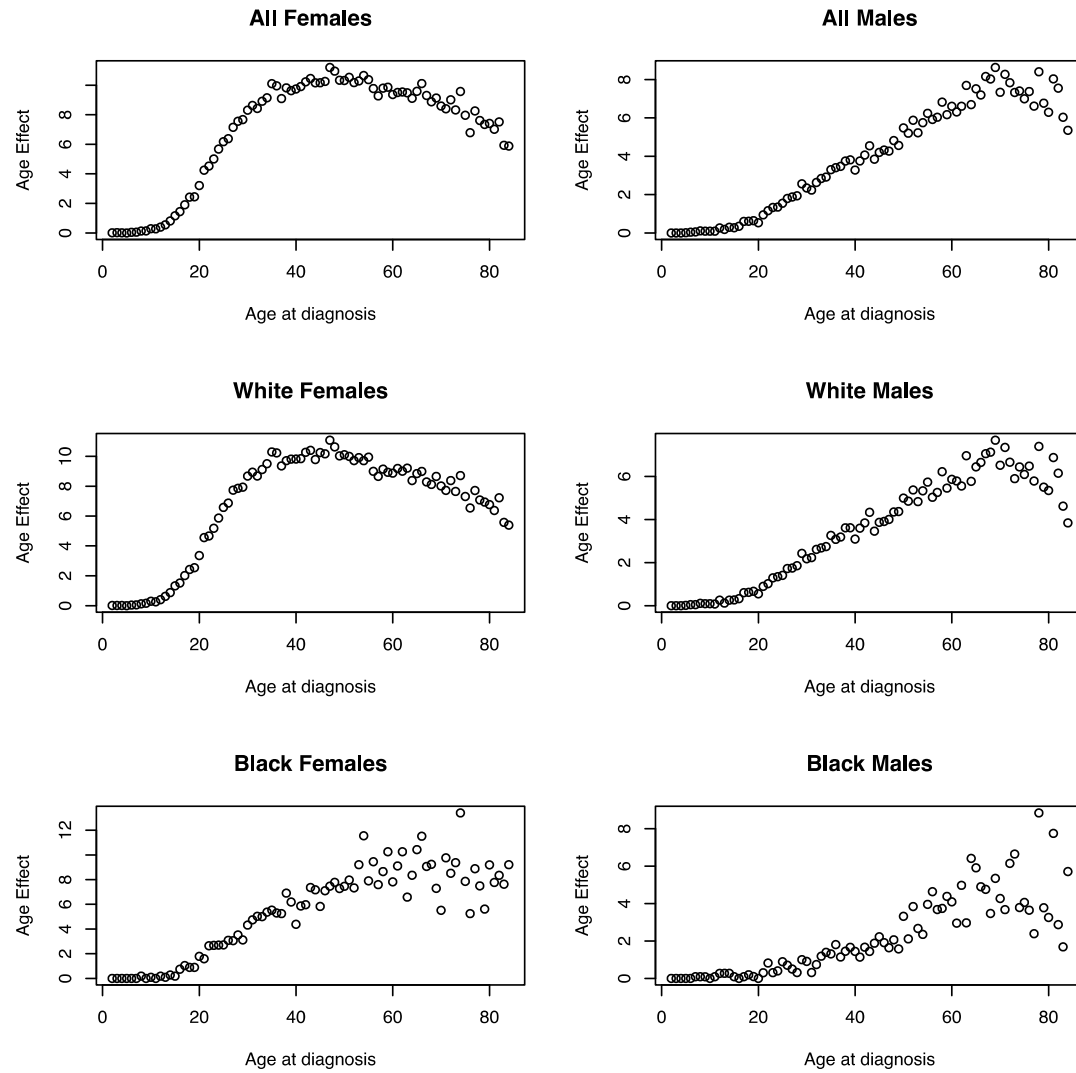
	AIC			AC	Relative AIC **	
	AC	AP	AP-C		AP	AP-C
Females	-174120.5	-174571.84	-174729.68	0	-451.34	-609.18
Males	-26887.74	-27012.24	-27054.12	0	-124.5	-166.38
White females	-128440.88	-128818.6	-128970.3	0	-377.72	-529.42
White males	-19117.082	-19195.702	-19237.898	0	-78.62	-120.816
Black females	3743.768	3732.542	3743.278	0	-11.226	-0.49
Black males	2964.93	2975.158	2995.378	0	10.228	30.448

AC, age-cohort; AP, age-period; AP-C, age-period-cohort.

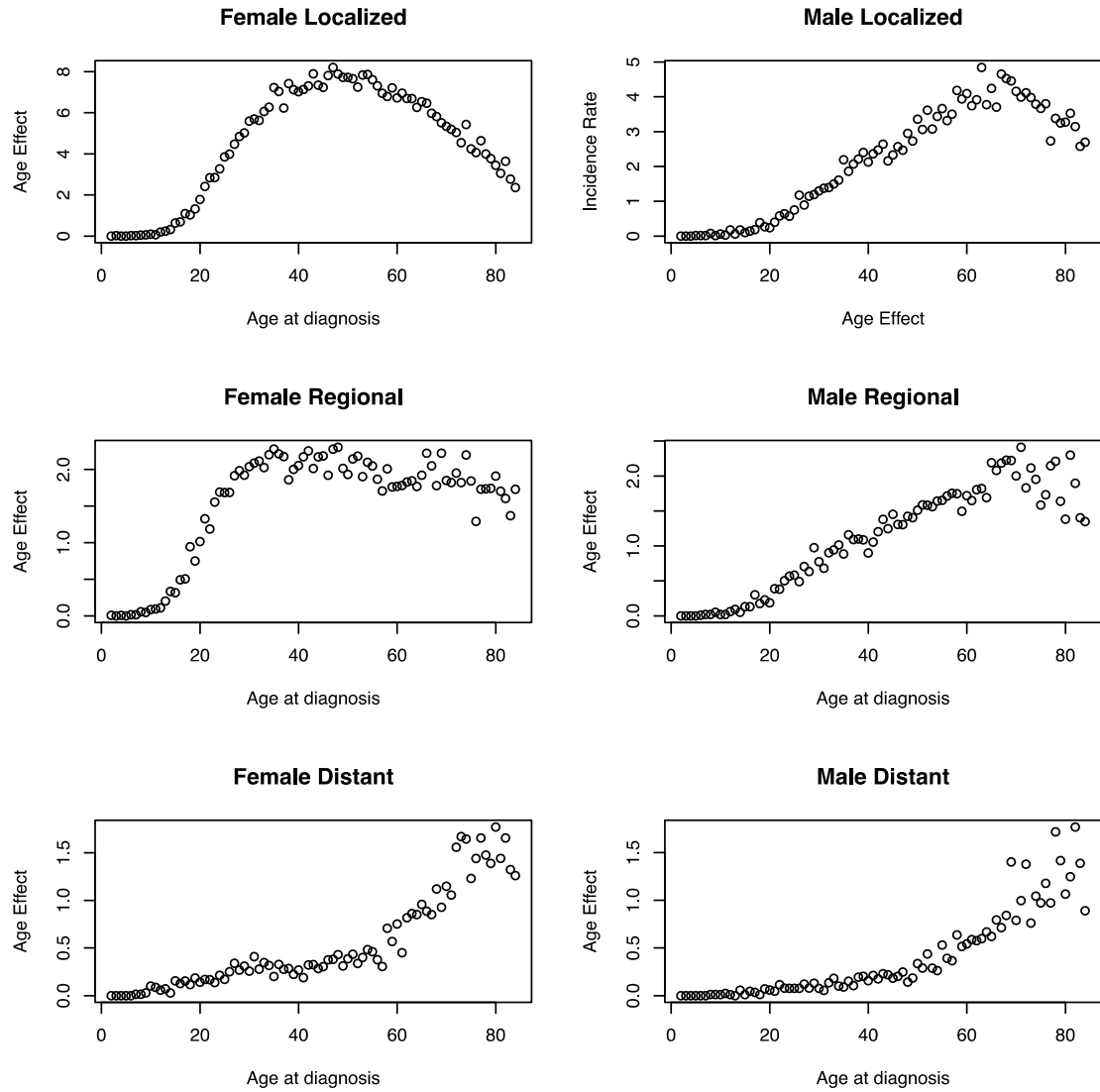
\*  $-2 \times \log(\text{likelihood}) + 2 \times \text{number of estimated parameters}$ .

\*\* Relative values that weight the goodness of fit of the model to empirical data. The lower the AIC, the better the model fit.

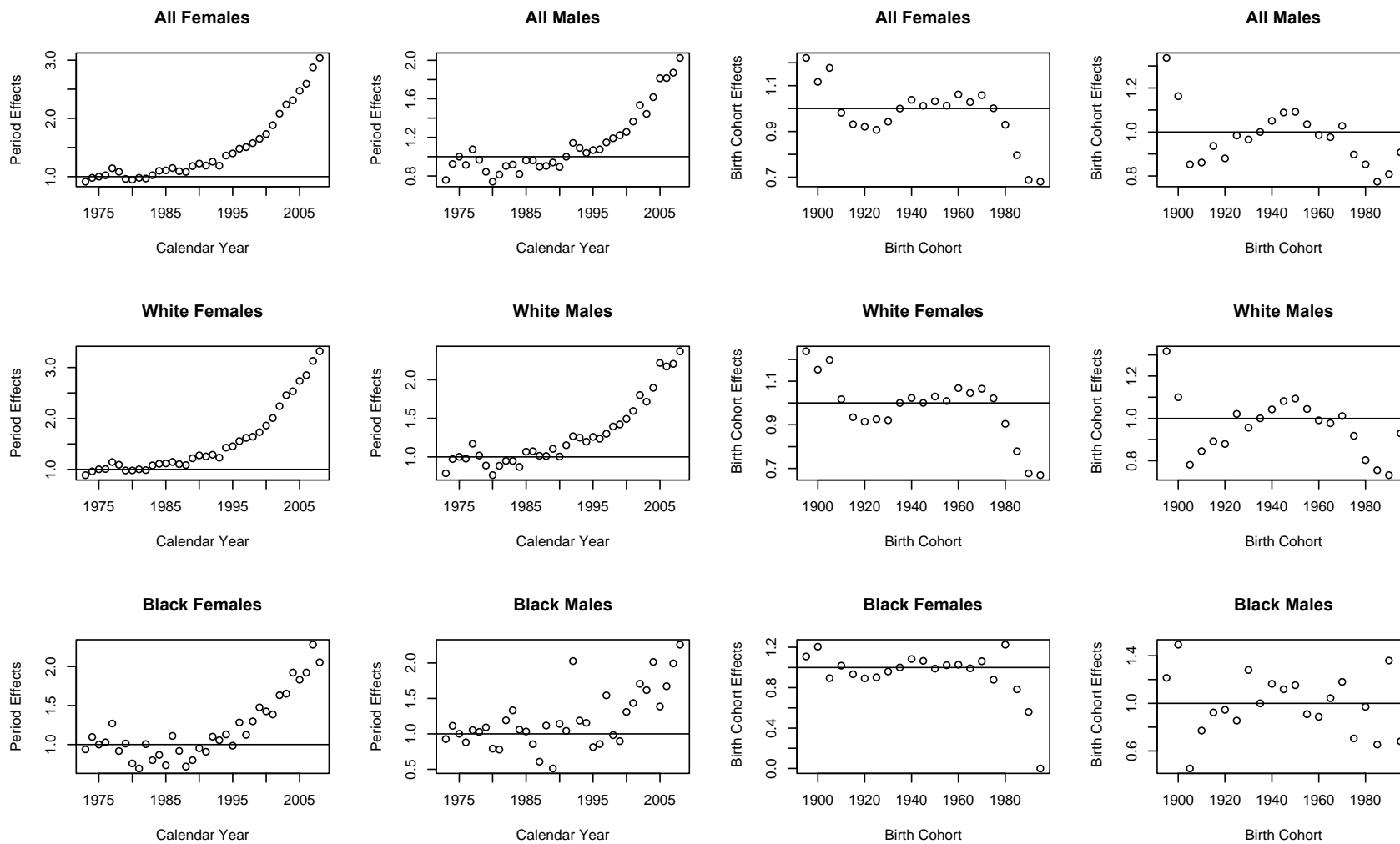
**Figure 3s. Age effects by race and sex (all cases)- Age-period-cohort models**



**Figure 4s. Age-effects by tumor stage (all cases)- Age-period-cohort models**

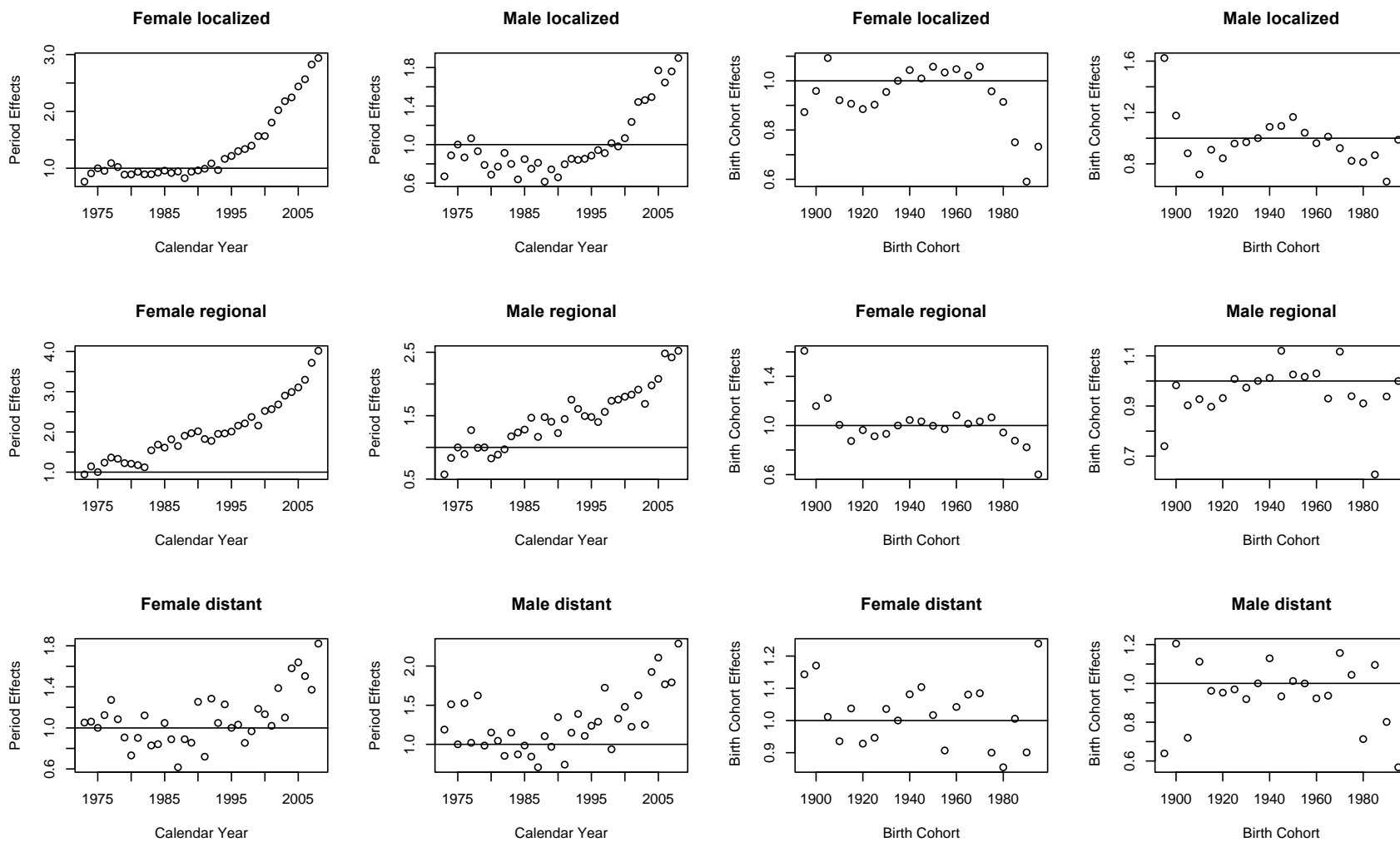


**Figure 5s. Thyroid cancer incidence period and cohort trends by gender and race – Age-period-cohort models**

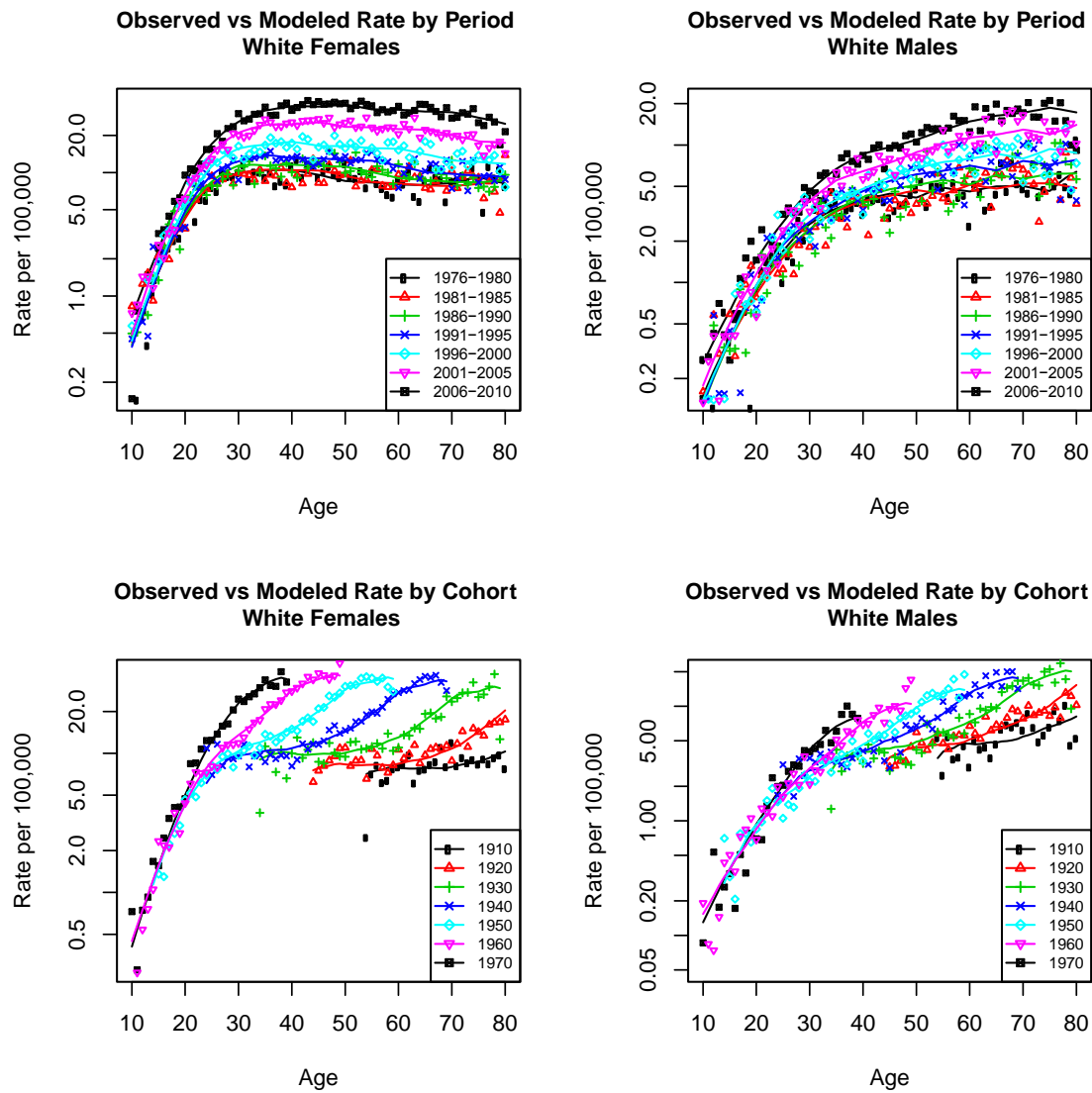




**Figure 6s. Thyroid cancer incidence period and cohort trends by gender and stage – Age-period-cohort models**



**Figure 7s. Observed versus fitted thyroid cancer incidence by gender in Whites**



**Figure 8s. Observed versus fitted thyroid cancer incidence by gender in Blacks**

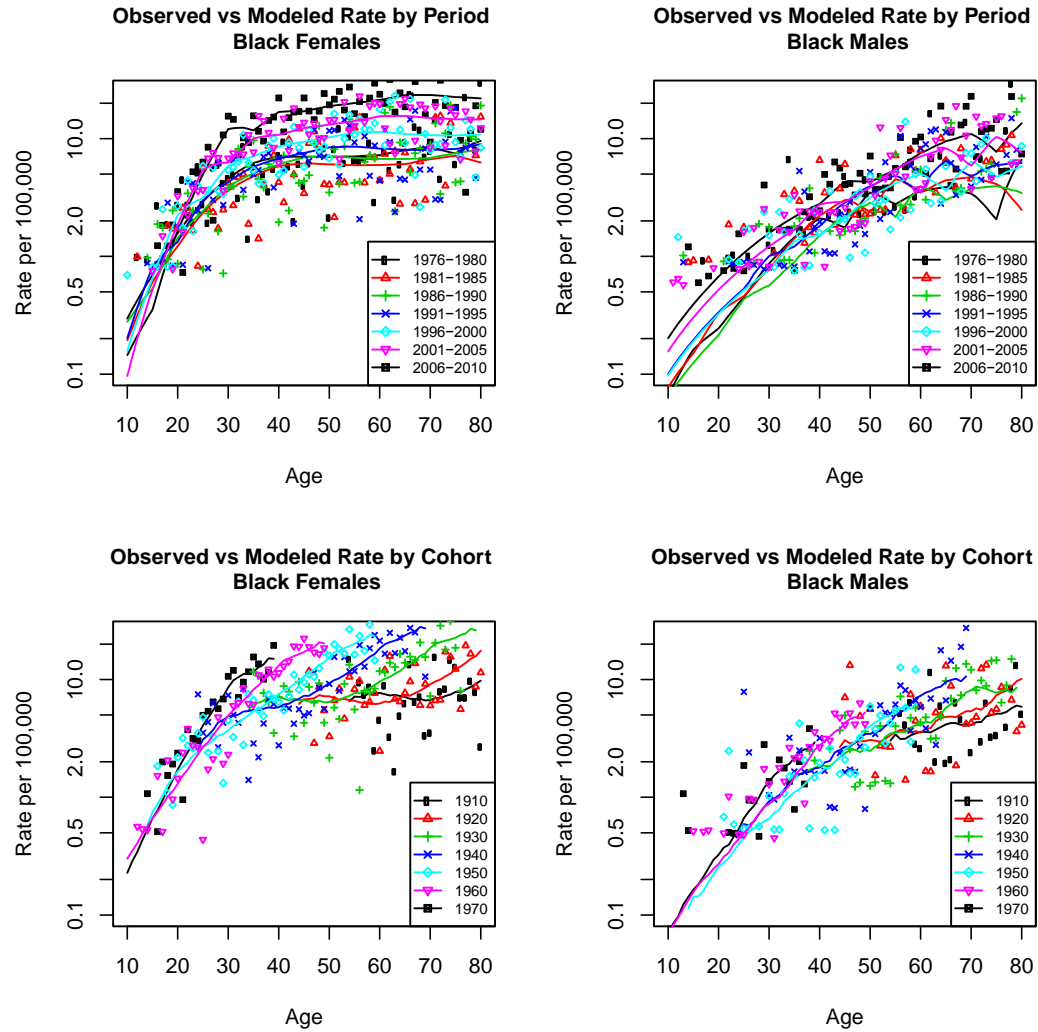


Figure 9s. *Observed versus fitted thyroid cancer incidence among papillary histology by gender*

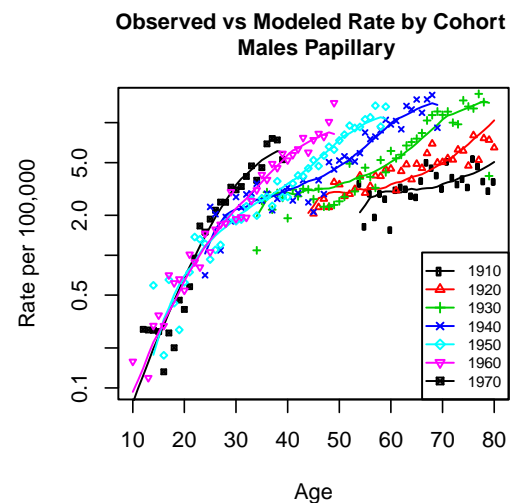
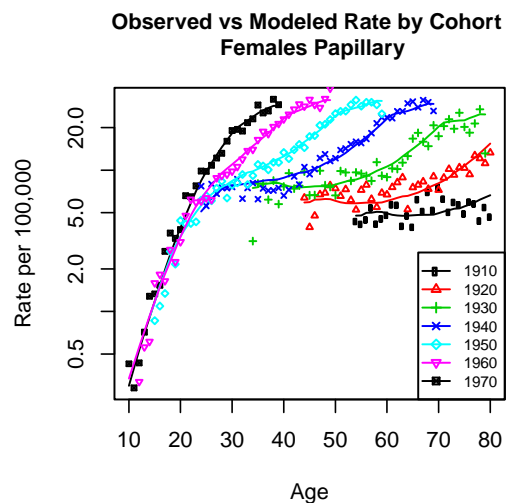
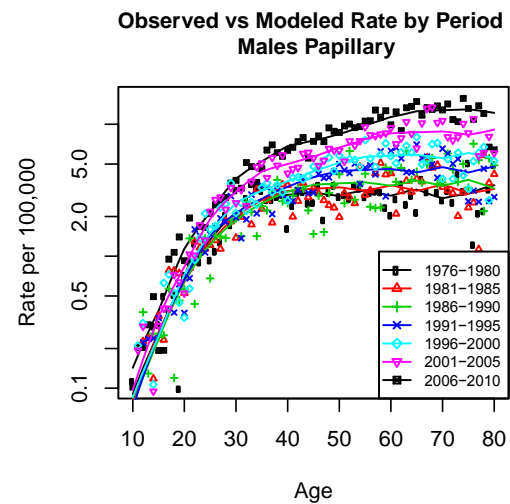
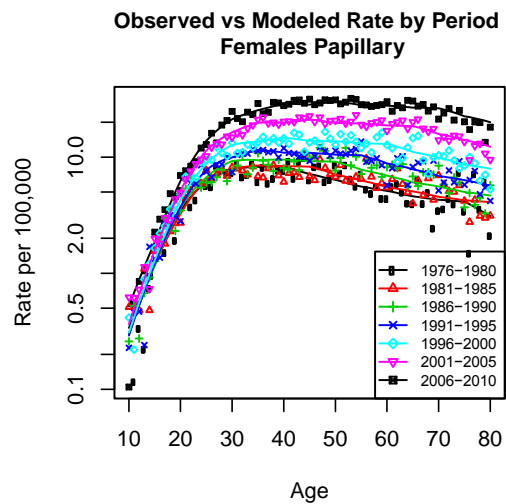


Figure 10s. *Observed versus fitted thyroid cancer incidence among follicular histology by gender*

