Supplementary Table 1: Mean bias and mean absolute deviation for the empirical and the Weibull approach for sex cancers with high mortality and two common sex-specific types when metastasized (breast and prostate cancer). All estimates are in years.

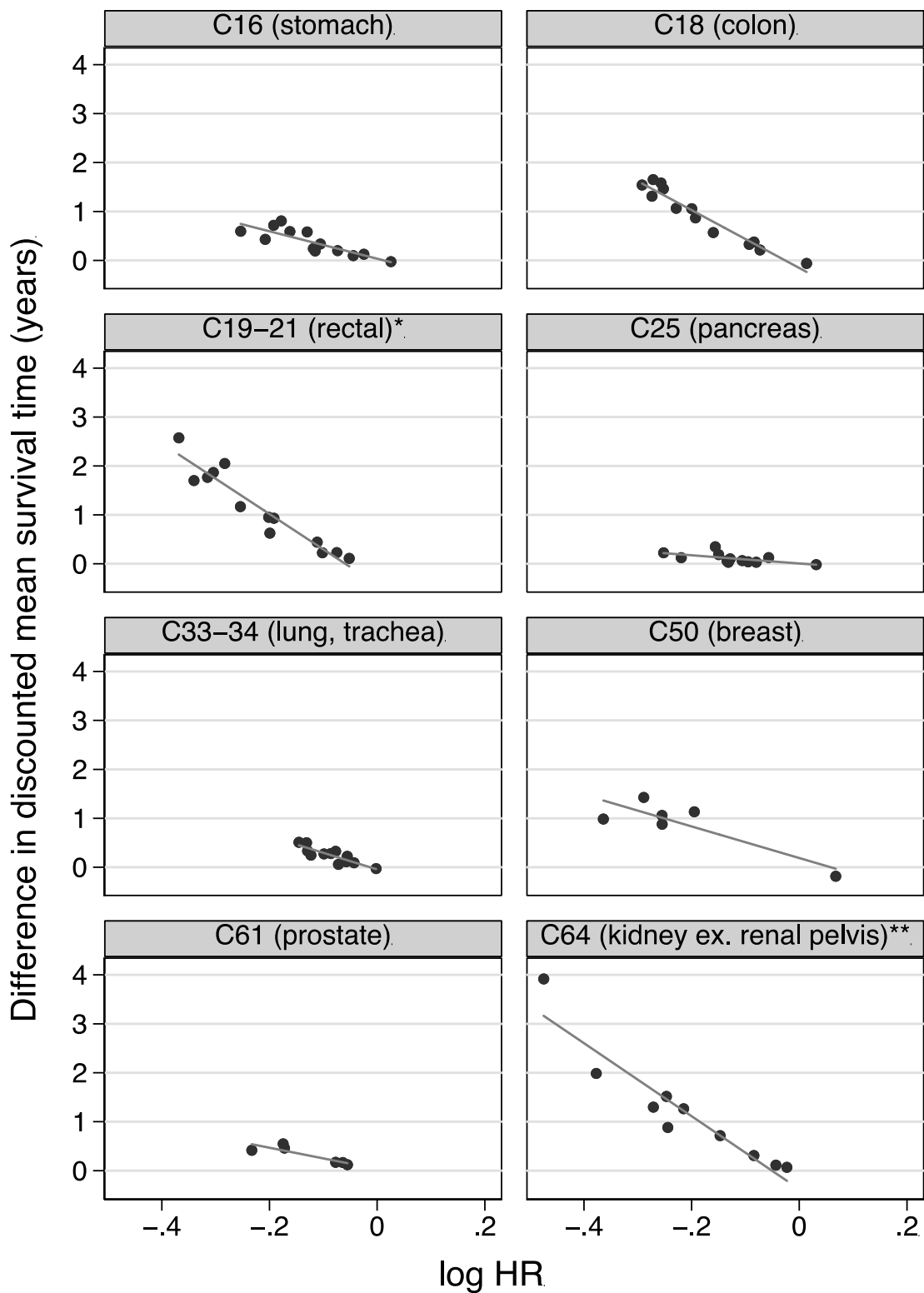|	Empirical		Weibull	
Cancer type	Mean bias (95% CI)	Mean absolute deviation	Mean bias (95% CI)	Mean absolute deviation
Stomach	-0.133 (-0.308 ; 0.042)	0.256	-0.436 (-0.621 ; -0.251)	0.442
Colon	-1.050 (-1.513 ; -0.588)	1.050	1.569 (0.308 ; 2.829)	1.758
Rectum, rectosigmoid, anus	-0.930 (-1.638 ; -0.222)	1.087	1.842 (-0.970 ; 4.654)	2.313
Pancreas	-0.026 (-0.121 ; 0.069)	0.096	-0.071 (-0.167 ; 0.024)	0.082
Lung, trachea	-0.163 (-0.264 ; -0.063)	0.167	-0.273 (-0.396 ; -0.149)	0.275
Breast	0.380 (0.013 ; 0.747)	0.415	0.372 (0.152 ; 0.592)	0.372
Prostate	0.031 (-0.120 ; 0.182)	0.124	-0.138 (-0.336 ; 0.059)	0.169
Kidney excluding renal pelvis	-0.467 (-1.311 ; 0.377)	0.926	2.782 (-1.134 ; 6.699)	3.270

Supplementary Table 2: Estimates for the linear relationship between the discounted mean survival times (annual rate of 3%) and logarithmic HRs. The table shows the slope, intercept, standard deviation, and correlation stratified on cancer type for the six cancers with highest mortality and two common sex-specific types when metastasized (breast and prostate cancer).

	C16	C18	C19-21	C25	C33-34	C50	C61	C64
Slope	-2.7639	-5.7958	-6.6630	-0.8630	-2.8964	-3.4034	-2.3329	-7.0361
(SE)	0.4951	0.4592	0.6234	0.3329	0.6210	1.0118	0.5398	0.9730
Intercept	0.0402	-0.1904	-0.3607	-0.0103	-0.0027	0.2373	0.0178	-0.3434
(SE)	0.0669	0.0923	0.1434	0.0465	0.0593	0.2487	0.0748	0.2396
SD	0.2761	0.3184	0.3887	0.1011	0.1726	0.5810	0.1840	0.4694
Correlation*	0.8310	0.9154	0.9130	0.9065	0.9266	0.8793	0.8902	0.8647

Note: Estimated using linear regression and weighted with a standard population of n = 500.
* Correlation between intercept and slope based on estimated variance-covariance.

Supplementary Figure 1: Difference in discounted mean survival vs. logarithmic HR for eight included cancer types stratified on age groups and time of diagnosis, Norway, 1965 to 2004. Discounted with an annual rate of 3%.

* Rectum, rectosigmoid, anus
** Kidney excluding renal pelvis