Online appendix

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Prepping data

In order to load the data, the preferred way for for R-users is to use the .rda-file. There is, however, also a .csv-file available in the repository. Further, a the parliamentary experience and youth party experience variable needs to be recoded in order to reproduce the results:

```
load("../data/ministers.rda")
ministers$youthAny <- ifelse(ministers$youthCen==1 | ministers$youthLoc==1, 1, 0)
ministers$parlTen_cum2 <- ifelse(ministers$parlTen_cum > 31, 1, 0)
source("../thesis/R/getmode.R")
```

The paper models

All models require the *survival*-package

```
library(survival)
```

Base model

```
base <- coxph(Surv(dur_start, dur_end, event2) ~ resigcalls + age_cen +
                factor(gender) + factor(education_dum) +
                frailty(jurisdiction),
              data=ministers, subset=prime_minister==0 & nsd_id!=299)
summary(base)
## Call:
  coxph(formula = Surv(dur_start, dur_end, event2) ~ resignalls +
       age_cen + factor(gender) + factor(education_dum) + frailty(jurisdiction),
##
       data = ministers, subset = prime_minister == 0 & nsd_id !=
##
##
           299)
##
     n= 625, number of events= 98
##
##
##
                                     se(coef) se2
                                                       Chisq DF
## resigcalls
                             0.22030 0.07188 0.07129 9.39 1.00 0.00220
## age_cen
                             0.05519 0.01361 0.01336 16.44 1.00 0.00005
## factor(gender)Female
                             0.14977 0.24046 0.23404 0.39 1.00 0.53000
## factor(education_dum)Lowe 0.04400 0.26284 0.25737 0.03 1.00 0.87000
## frailty(jurisdiction)
                                                       12.71 6.57 0.06500
##
##
                             exp(coef) exp(-coef) lower .95 upper .95
## resigcalls
                                 1.246
                                           0.8023
                                                     1.0826
                                                                 1.435
                                                                 1.085
                                 1.057
                                           0.9463
                                                     1.0289
## age_cen
```

```
## factor(gender)Female
                                           0.8609
                                                     0.7251
                                                                1.861
                                 1.162
                                 1.045
                                           0.9569
                                                     0.6243
                                                                1.749
## factor(education_dum)Lowe
##
## Iterations: 7 outer, 28 Newton-Raphson
        Variance of random effect= 0.1337597
                                              I-likelihood = -534
## Degrees of freedom for terms= 1.0 1.0 0.9 1.0 6.6
## Concordance= 0.694 (se = 0.031)
## Likelihood ratio test= 44.39 on 10.42 df,
```

Including experience

```
experience <- coxph(Surv(dur_start, dur_end, event2) ~ resignalls +</pre>
                      age_cen + factor(gender) + factor(education_dum) +
                      factor(youthAny) + minister_exp_cum_y_lag + factor(parlTen_cum2) +
                      frailty(jurisdiction),
                    data=ministers, subset=prime_minister==0 & nsd_id!=299)
summary(experience)
## Call:
## coxph(formula = Surv(dur_start, dur_end, event2) ~ resigcalls +
       age_cen + factor(gender) + factor(education_dum) + factor(youthAny) +
##
       minister_exp_cum_y_lag + factor(parlTen_cum2) + frailty(jurisdiction),
##
       data = ministers, subset = prime_minister == 0 & nsd_id !=
##
           299)
##
##
    n= 625, number of events= 98
##
##
                                      se(coef) se2
                                                       Chisq DF
                             coef
## resigcalls
                              0.22850 0.07240 0.07190 9.96 1.00 0.0016
## age_cen
                              0.04923 0.01498 0.01474 10.80 1.00 0.0010
## factor(gender)Female
                              0.18165 0.24603 0.23947 0.55 1.00 0.4600
## factor(education_dum)Lowe 0.08434 0.26528 0.25862 0.10 1.00 0.7500
## factor(youthAny)1
                              0.26140 0.32629 0.32489
                                                       0.64 1.00 0.4200
                              0.10404 0.03791 0.03714 7.53 1.00 0.0061
## minister_exp_cum_y_lag
## factor(parlTen_cum2)1
                             -0.31695 0.24551 0.24249
                                                       1.67 1.00 0.2000
                                                       14.24 6.81 0.0430
## frailty(jurisdiction)
##
                             exp(coef) exp(-coef) lower .95 upper .95
## resigcalls
                                1.2567
                                           0.7957
                                                     1.0905
                                                                1.448
## age_cen
                                1.0505
                                           0.9520
                                                     1.0201
                                                                1.082
## factor(gender)Female
                                1.1992
                                           0.8339
                                                     0.7404
                                                                1.942
## factor(education_dum)Lowe
                                1.0880
                                           0.9191
                                                     0.6469
                                                                1.830
## factor(youthAny)1
                                1.2987
                                           0.7700
                                                     0.6851
                                                                2.462
## minister_exp_cum_y_lag
                                1.1096
                                           0.9012
                                                     1.0302
                                                                1.195
## factor(parlTen_cum2)1
                                           1.3729
                                                     0.4502
                                0.7284
                                                                1.179
##
## Iterations: 5 outer, 24 Newton-Raphson
        Variance of random effect= 0.1442913
                                               I-likelihood = -530
## Degrees of freedom for terms= 1.0 1.0 0.9 1.0 1.0 1.0 6.8
## Concordance= 0.719 (se = 0.031)
## Likelihood ratio test= 53.5 on 13.59 df, p=1.156e-06
```

Cabinet attributes

```
cab <- coxph(Surv(dur_start, dur_end, event2) ~ resigcalls +</pre>
               age_cen + factor(gender) + factor(education_dum) +
               factor(CabinetType) + factor(structure)+
              frailty(jurisdiction),
             data=ministers, subset=prime_minister==0 & nsd_id!=299)
summary(cab)
## Call:
## coxph(formula = Surv(dur_start, dur_end, event2) ~ resigcalls +
##
       age_cen + factor(gender) + factor(education_dum) + factor(CabinetType) +
##
       factor(structure) + frailty(jurisdiction), data = ministers,
       subset = prime_minister == 0 & nsd_id != 299)
##
##
##
    n= 625, number of events= 98
##
##
                                      se(coef) se2
                             coef
                                                       Chisq DF
                              0.23821 0.07213 0.07160 10.91 1.00 9.6e-04
## resigcalls
                              0.05722 0.01378 0.01351 17.25 1.00 3.3e-05
## age cen
## factor(gender)Female
                             0.25660 0.24853 0.24124 1.07 1.00 3.0e-01
## factor(education_dum)Lowe -0.08365 0.27006 0.26383 0.10 1.00 7.6e-01
## factor(CabinetType)Majori 0.18821 0.22151 0.22042 0.72 1.00 4.0e-01
## factor(structure)Coalitio -0.50066 0.24287 0.24140 4.25 1.00 3.9e-02
## frailty(jurisdiction)
                                                       13.00 6.56 5.8e-02
##
##
                             exp(coef) exp(-coef) lower .95 upper .95
## resigcalls
                                1.2690
                                          0.7880 1.1017
                                                               1.4617
## age_cen
                                1.0589
                                           0.9444
                                                    1.0307
                                                               1.0879
## factor(gender)Female
                                1.2925
                                          0.7737
                                                    0.7941
                                                               2.1037
## factor(education dum)Lowe
                                0.9198
                                           1.0872
                                                     0.5417
                                                               1.5615
                                          0.8284
## factor(CabinetType)Majori
                                1.2071
                                                     0.7820
                                                               1.8633
## factor(structure)Coalitio
                                0.6061
                                           1.6498
                                                     0.3766
                                                               0.9757
##
## Iterations: 7 outer, 29 Newton-Raphson
       Variance of random effect= 0.1349566
                                               I-likelihood = -531.7
## Degrees of freedom for terms= 1.0 1.0 0.9 1.0 1.0 1.0 6.6
## Concordance= 0.699 (se = 0.031)
## Likelihood ratio test= 48.94 on 12.39 df, p=2.88e-06
```

Full model

coxph(formula = Surv(dur_start, dur_end, event2) ~ resigcalls +

```
##
       age_cen + factor(gender) + factor(youthAny) + minister_exp_cum_y_lag +
##
       factor(parlTen_cum2) + factor(education_dum) + factor(CabinetType) +
##
       factor(structure) + frailty(jurisdiction), data = ministers,
       subset = prime_minister == 0 & nsd_id != 299)
##
##
##
    n= 625, number of events= 98
##
##
                             coef
                                      se(coef) se2
                                                       Chisq DF
## resigcalls
                              0.23767 0.07270 0.07224 10.69 1.00 0.00110
                              0.05243 0.01536 0.01510 11.66 1.00 0.00064
## age_cen
## factor(gender)Female
                              0.27588 0.25615 0.24895 1.16 1.00 0.28000
## factor(youthAny)1
                              0.30081 0.32923 0.32783 0.83 1.00 0.36000
## minister_exp_cum_y_lag
                             0.09055 0.03939 0.03861 5.29 1.00 0.02200
## factor(parlTen_cum2)1
                             -0.26774 0.24800 0.24458 1.17 1.00 0.28000
## factor(education_dum)Lowe -0.02525 0.27599 0.26884 0.01 1.00 0.93000
## factor(CabinetType)Majori 0.15917 0.22188 0.22070 0.51 1.00 0.47000
## factor(structure)Coalitio -0.38202 0.25748 0.25590 2.20 1.00 0.14000
## frailty(jurisdiction)
                                                       14.34 6.77 0.04000
##
##
                             exp(coef) exp(-coef) lower .95 upper .95
## resigcalls
                               1.2683
                                          0.7885
                                                     1.0999
                                                                1.463
## age_cen
                                1.0538
                                          0.9489
                                                     1.0226
                                                                1.086
## factor(gender)Female
                               1.3177
                                          0.7589
                                                     0.7976
                                                                2.177
## factor(youthAny)1
                                          0.7402
                               1.3510
                                                     0.7086
                                                                2.576
                                                               1.183
## minister_exp_cum_y_lag
                               1.0948
                                          0.9134
                                                    1.0134
## factor(parlTen_cum2)1
                               0.7651
                                          1.3070
                                                    0.4706
                                                               1.244
## factor(education_dum)Lowe
                               0.9751
                                          1.0256
                                                     0.5677
                                                                1.675
## factor(CabinetType)Majori
                               1.1725
                                          0.8529
                                                     0.7590
                                                               1.811
## factor(structure)Coalitio
                               0.6825
                                          1.4652
                                                     0.4120
                                                                1.130
##
## Iterations: 5 outer, 24 Newton-Raphson
##
        Variance of random effect= 0.1443318
                                              I-likelihood = -528.8
## Degrees of freedom for terms= 1.0 1.0 0.9 1.0 1.0 0.9 1.0 1.0 6.8
## Concordance= 0.719 (se = 0.031)
## Likelihood ratio test= 55.8 on 15.52 df, p=1.891e-06
```

Robustness models

Age squared

##

##

##

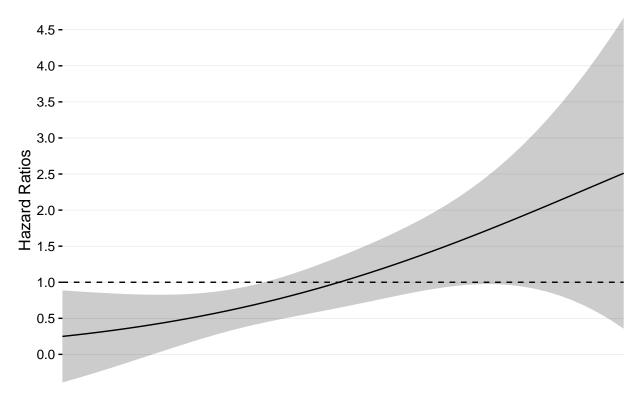
minister_exp_cum_y_lag + factor(parlTen_cum2) + factor(education_dum) +

factor(CabinetType) + factor(structure) + frailty(jurisdiction),
data = ministers, subset = prime_minister == 0 & nsd_id !=

```
##
          299)
##
##
    n= 625, number of events= 98
##
##
                                     se(coef) se2
                                                      Chisq DF
                             0.23741 0.07290 0.07244 10.60 1.00 0.00110
## resigcalls
## poly(age cen, 2, raw = FA 11.36310 3.42495 3.39359 11.01 1.00 0.00091
## poly(age_cen, 2, raw = FA -1.12655 2.82169 2.78583 0.16 1.00 0.69000
## factor(gender)Female
                             0.28226 0.25673 0.24960 1.21 1.00 0.27000
## factor(youthAny)1
                             0.30763 0.32966 0.32826 0.87 1.00 0.35000
## minister_exp_cum_y_lag
                             0.09253 0.03963 0.03880 5.45 1.00 0.02000
## factor(parlTen_cum2)1
                            -0.26649 0.24797 0.24460
                                                      1.15 1.00 0.28000
## factor(education_dum)Lowe -0.01972 0.27570 0.26856 0.01 1.00 0.94000
## factor(CabinetType)Majori 0.16888 0.22274 0.22178 0.57 1.00 0.45000
## factor(structure)Coalitio -0.38694 0.25761 0.25610 2.26 1.00 0.13000
## frailty(jurisdiction)
                                                      14.47 6.81 0.03900
##
##
                            exp(coef) exp(-coef) lower .95 upper .95
                            1.268e+00 7.887e-01 1.099e+00 1.463e+00
## resigcalls
## poly(age_cen, 2, raw = FA 8.609e+04 1.162e-05 1.046e+02 7.084e+07
## poly(age_cen, 2, raw = FA 3.241e-01 3.085e+00 1.285e-03 8.177e+01
## factor(gender)Female
                            1.326e+00 7.541e-01 8.018e-01 2.193e+00
## factor(youthAny)1
                            1.360e+00 7.352e-01 7.128e-01 2.595e+00
## minister_exp_cum_y_lag
                            1.097e+00 9.116e-01 1.015e+00 1.186e+00
## factor(parlTen cum2)1
                            7.661e-01 1.305e+00 4.712e-01 1.245e+00
## factor(education dum)Lowe 9.805e-01 1.020e+00 5.712e-01 1.683e+00
## factor(CabinetType)Majori 1.184e+00 8.446e-01 7.652e-01 1.832e+00
## factor(structure)Coalitio 6.791e-01 1.472e+00 4.099e-01 1.125e+00
##
## Iterations: 5 outer, 25 Newton-Raphson
##
       Variance of random effect= 0.146571  I-likelihood = -528.8
## Degrees of freedom for terms= 1.0 1.9 0.9 1.0 1.0 0.9 1.0 1.0 6.8
## Concordance= 0.718 (se = 0.031)
## Likelihood ratio test= 56.13 on 16.54 df, p=3.337e-06
```

The close to linear relationship between durability and age squared can easily be shown by ploting the regression line for each value on age:

```
pred_plot$lower <- pred_plot$fit-1.96*pred_plot$se.fit</pre>
pred_plot$age_cen <- pred_plot$age_cen + median(ministers$age)</pre>
ggplot(pred_plot, aes(x=age_cen, y=fit))+
  geom_line(stat="identity", color="black")+
  geom_ribbon(aes(ymax=upper, ymin=lower, color=NULL), alpha=.2, fill="black") +
  geom_hline(aes(yintercept=1), linetype="dashed")+
  labs(y="Hazard Ratios", x="Resignation calls per year")+
  scale_x_continuous(breaks=seq(0,2,.25), expand=c(0,0))+
  scale_y_continuous(breaks=seq(0,10,.5), expand=c(0,.21))+
  theme(legend.position=c(.15,.9),
        panel.grid.major.x=element_blank(),
        panel.grid.minor=element_blank(),
        panel.border=element_blank(),
        strip.background=element_blank(),
        panel.margin=unit(1, "cm"),
        axis.line=element_line(lineend = "square"),
        axis.title.y=element_text(vjust=1.5, siz=12),
        axis.title.x=element_text(vjust=0, size=12))
```



Resignation calls per year

Parliamentary experience == in parliament > 0 days

The following example shows how parliamentary experience does matter when it is coded as 1 when a minister has been in parliament more than 0 days:

```
ministers$parlTen_cum3 <- ifelse(ministers$parlTen_cum > 0, 1, 0)
parl_onday <- coxph(Surv(dur_start, dur_end, event2) ~ resigcalls + age_cen +
                      factor(gender) + factor(youthAny) + minister_exp_cum_y_lag +
                      factor(parlTen_cum3) + factor(education_dum) +
                      factor(CabinetType) + factor(structure) + frailty(jurisdiction),
                    data=ministers, subset=prime_minister==0 & nsd_id!=299)
summary(parl_onday)
## Call:
## coxph(formula = Surv(dur_start, dur_end, event2) ~ resigcalls +
       age_cen + factor(gender) + factor(youthAny) + minister_exp_cum_y_lag +
       factor(parlTen_cum3) + factor(education_dum) + factor(CabinetType) +
##
##
       factor(structure) + frailty(jurisdiction), data = ministers,
       subset = prime_minister == 0 & nsd_id != 299)
##
##
    n= 625, number of events= 98
##
##
##
                                      se(coef) se2
                                                       Chisq DF
## resigcalls
                              0.26373\ 0.07322\ 0.07281\ 12.97\ 1.00\ 0.00032
## age_cen
                              0.05736 0.01546 0.01519 13.76 1.00 0.00021
                              0.32555 0.25727 0.24953 1.60 1.00 0.21000
## factor(gender)Female
## factor(youthAny)1
                             0.55698 0.34521 0.34323 2.60 1.00 0.11000
## minister_exp_cum_y_lag
                             0.10786 0.04033 0.03962 7.15 1.00 0.00750
## factor(parlTen_cum3)1
                             -0.64554 0.27150 0.26820 5.65 1.00 0.01700
## factor(education_dum)Lowe 0.06496 0.27646 0.26979 0.06 1.00 0.81000
## factor(CabinetType)Majori 0.16979 0.21992 0.21868 0.60 1.00 0.44000
## factor(structure)Coalitio -0.32682 0.25661 0.25510 1.62 1.00 0.20000
## frailty(jurisdiction)
                                                       14.03 6.68 0.04300
##
##
                             exp(coef) exp(-coef) lower .95 upper .95
## resigcalls
                               1.3018
                                           0.7682
                                                               1.5026
                                                     1.1277
## age_cen
                                1.0590
                                           0.9443
                                                     1.0274
                                                               1.0916
## factor(gender)Female
                                1.3848
                                           0.7221
                                                     0.8364
                                                               2.2928
## factor(youthAny)1
                               1.7454
                                           0.5729
                                                    0.8873
                                                               3.4335
## minister_exp_cum_y_lag
                               1.1139
                                           0.8977
                                                    1.0292
                                                               1.2055
## factor(parlTen_cum3)1
                               0.5244
                                           1.9070
                                                     0.3080
                                                               0.8928
## factor(education_dum)Lowe
                               1.0671
                                           0.9371
                                                     0.6207
                                                               1.8346
## factor(CabinetType)Majori
                                           0.8438
                               1.1851
                                                     0.7701
                                                               1.8236
## factor(structure)Coalitio
                               0.7212
                                           1.3865
                                                     0.4362
                                                               1.1926
##
## Iterations: 5 outer, 24 Newton-Raphson
       Variance of random effect= 0.1413044
                                               I-likelihood = -526.5
## Degrees of freedom for terms= 1.0 1.0 0.9 1.0 1.0 1.0 1.0 1.0 6.7
## Concordance= 0.717 (se = 0.031)
## Likelihood ratio test= 60.3 on 15.43 df,
                                              p=3.084e-07
```

Resignation call coding scheme

Fixed string	Varying string
"Minister name" AND	"gå* av*" "må* gå*"

Fixed string	Varying string
	"bør* gå *"
	"burde* gå *"
	"skulle* gå *"
	"trekke $*$ seg"
	"avgang*"
	"avskjed*"
	"vurder* sin"
	"vurder* stilling*"
	"vurder* posisjon*"
	"fratre*"
	"takk* av"
	"tre* tilb*"
	"avsett*"
	"avsatt"
	"skift* ut"
	"mistill*"