Online appendix

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How to get data

The data is located in the github repository "https://github.com/martigso/ministersNor/". For those familiar with github, cloning the the repository and running "online_appendix.Rmd" should produce this document (here done through R):

```
system("cd <where/to/put/the/repository>")

system("git clone git@github.com:martigso/ministersNor.git")
```

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 for those that do not use R. 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 from the paper is replicated below. These models require the *survival*-package to run:

```
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)
round(summary(base)[["coefficients"]], digits = 3)
```

```
##                              coef se(coef)   se2  Chisq    DF     p
## resigcalls                  0.220    0.072 0.071  9.392 1.000 0.002
## age_cen                     0.055    0.014 0.013 16.444 1.000 0.000
## factor(gender)Female        0.150    0.240 0.234  0.388 1.000 0.533
## factor(education_dum)Lowe 0.044    0.263 0.257  0.028 1.000 0.867
## frailty(jurisdiction)         NA       NA    NA 12.711 6.571 0.065
```

Including experience

```
experience <- coxph(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)
round(summary(experience)[["coefficients"]], digits = 3)
```

```
##                              coef se(coef)   se2  Chisq    DF     p
## resigcalls                  0.229    0.072 0.072  9.961 1.000 0.002
## age_cen                     0.049    0.015 0.015 10.798 1.000 0.001
## factor(gender)Female        0.182    0.246 0.239  0.545 1.000 0.460
## factor(education_dum)Lowe   0.084    0.265 0.259  0.101 1.000 0.751
## factor(youthAny)1           0.261    0.326 0.325  0.642 1.000 0.423
## minister_exp_cum_y_lag      0.104    0.038 0.037  7.533 1.000 0.006
## factor(parlTen_cum2)1      -0.317    0.246 0.242  1.667 1.000 0.197
## frailty(jurisdiction)         NA       NA    NA 14.243 6.814 0.043
```

Cabinet attributes

```
cab <- coxph(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)
round(summary(cab)[["coefficients"]], digits = 3)
```

```
##                              coef se(coef)   se2  Chisq    DF     p
## resigcalls                  0.238    0.072 0.072 10.906 1.000 0.001
## age_cen                     0.057    0.014 0.014 17.254 1.000 0.000
## factor(gender)Female        0.257    0.249 0.241  1.066 1.000 0.302
## factor(education_dum)Lowe -0.084    0.270 0.264  0.096 1.000 0.757
## factor(CabinetType)Majori  0.188    0.222 0.220  0.722 1.000 0.396
## factor(structure)Coalitio -0.501    0.243 0.241  4.249 1.000 0.039
## frailty(jurisdiction)         NA       NA    NA 12.999 6.564 0.058
```

Full model

```
all <- coxph(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)
round(summary(all)[["coefficients"]], digits = 3)
```

```
##                              coef se(coef)   se2  Chisq    DF     p
## resigcalls                  0.238    0.073 0.072 10.688 1.000 0.001
## age_cen                     0.052    0.015 0.015 11.658 1.000 0.001
## factor(gender)Female        0.276    0.256 0.249  1.160 1.000 0.281
## factor(youthAny)1           0.301    0.329 0.328  0.835 1.000 0.361
## minister_exp_cum_y_lag      0.091    0.039 0.039  5.285 1.000 0.022
## factor(parlTen_cum2)1      -0.268    0.248 0.245  1.166 1.000 0.280
## factor(education_dum)Lowe -0.025    0.276 0.269  0.008 1.000 0.927
```

```
## factor(CabinetType)Majori  0.159    0.222 0.221  0.515 1.000 0.473
## factor(structure)Coalitio -0.382    0.257 0.256  2.201 1.000 0.138
## frailty(jurisdiction)         NA       NA    NA 14.340 6.774 0.040
```

Robustness models

Age squared

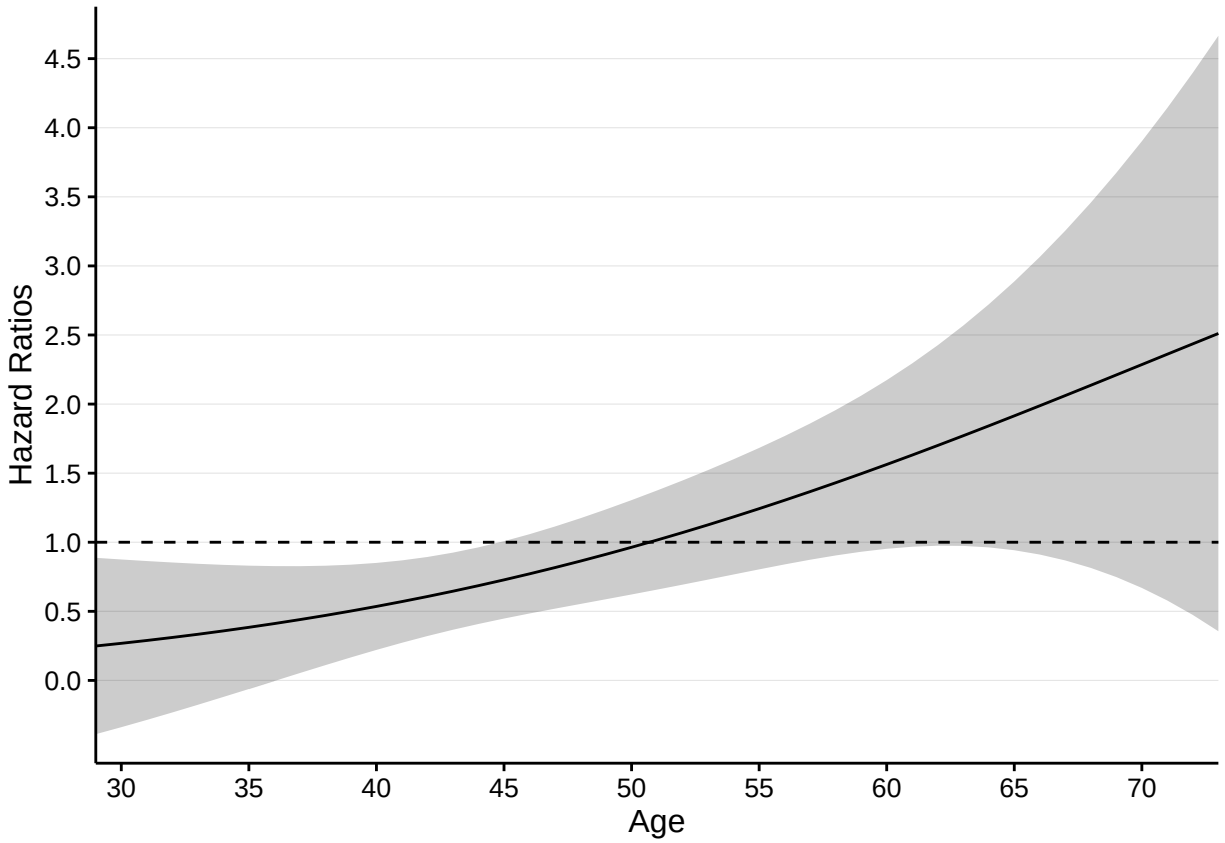
```
agesq <- coxph(Surv(dur_start, dur_end, event2) ~ resigcalls +
                 poly(age_cen, 2, raw = FALSE) + factor(gender) +
                 factor(youthAny) + minister_exp_cum_y_lag + factor(parlTen_cum2) +
                 factor(education_dum) +  factor(CabinetType) + factor(structure) +
                 frailty(jurisdiction),
               data=ministers, subset=prime_minister==0 & nsd_id!=299)
round(summary(agesq)[["coefficients"]], digits = 3)
```

```
##                              coef se(coef)   se2  Chisq    DF     p
## resigcalls                  0.237    0.073 0.072 10.605 1.000 0.001
## poly(age_cen, 2, raw = FA 11.363    3.425 3.394 11.007 1.000 0.001
## poly(age_cen, 2, raw = FA -1.127    2.822 2.786  0.159 1.000 0.690
## factor(gender)Female        0.282    0.257 0.250  1.209 1.000 0.272
## factor(youthAny)1           0.308    0.330 0.328  0.871 1.000 0.351
## minister_exp_cum_y_lag      0.093    0.040 0.039  5.451 1.000 0.020
## factor(parlTen_cum2)1      -0.266    0.248 0.245  1.155 1.000 0.283
## factor(education_dum)Lowe -0.020    0.276 0.269  0.005 1.000 0.943
## factor(CabinetType)Majori  0.169    0.223 0.222  0.575 1.000 0.448
## factor(structure)Coalitio -0.387    0.258 0.256  2.256 1.000 0.133
## frailty(jurisdiction)         NA       NA    NA 14.466 6.812 0.039
```

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

```
pred1 <- with(ministers, data.frame(resigcalls=min(resigcalls),
                                    age_cen=round(min(age_cen),
                                                  digits = 0):round(max(age_cen),
                                                                    digits = 0),
                                    gender=getmode(gender),
                                    minister_exp_cum_y_lag=median(minister_exp_cum_y_lag),
                                    parlTen_cum2=getmode(parlTen_cum2),
                                    youthAny=getmode(youthAny),
                                    education_dum=getmode(education_dum),
                                    CabinetType=getmode(CabinetType),
                                    structure=getmode(structure)))

pred_plot <- data.frame(predict(agesq, newdata=pred1,
                                    type="risk", se=TRUE, reference="sample"), pred1)

pred_plot$upper <- pred_plot$fit+1.96*pred_plot$se.fit
pred_plot$lower <- pred_plot$fit-1.96*pred_plot$se.fit
pred_plot$age_cen <- pred_plot$age_cen + median(ministers$age)

library(ggplot2)

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="Age")+
  scale_x_continuous(breaks=seq(0,100,5), 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.x=element_line(),
        axis.line.y=element_line(),
        axis.title.y=element_text(vjust=1.5, siz=12),
        axis.title.x=element_text(vjust=0, size=12))
```



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)
round(summary(parl_onday)[["coefficients"]], digits = 3)
```

```
##                              coef se(coef)   se2  Chisq   DF     p
## resigcalls                  0.264    0.073 0.073 12.974 1.00 0.000
## age_cen                     0.057    0.015 0.015 13.760 1.00 0.000
## factor(gender)Female        0.326    0.257 0.250  1.601 1.00 0.206
## factor(youthAny)1           0.557    0.345 0.343  2.603 1.00 0.107
## minister_exp_cum_y_lag      0.108    0.040 0.040  7.153 1.00 0.007
## factor(parlTen_cum3)1      -0.646    0.272 0.268  5.653 1.00 0.017
## factor(education_dum)Lowe   0.065    0.276 0.270  0.055 1.00 0.814
## factor(CabinetType)Majori   0.170    0.220 0.219  0.596 1.00 0.440
## factor(structure)Coalitio -0.327    0.257 0.255  1.622 1.00 0.203
## frailty(jurisdiction)          NA       NA    NA 14.033 6.68 0.043
```

Seats and reshuffles

Following Huber and Martinez-Gallardo (2008), I test the whether adverse selection could have a limiting effect on resignation calls by including party size of the minister and reshuffles (Kam and Indridason 2005). 1 indicates that the minister has been reshuffled in this cabinet, and 0 that he has not:

```
reshuffles <- coxph(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) + factor(reshuffle)+
                      frailty(jurisdiction),
                    data=ministers, subset=prime_minister==0 & nsd_id!=299)
round(summary(reshuffles)[["coefficients"]], digits = 3)
```

```
##                              coef se(coef)   se2  Chisq    DF     p
## resigcalls                  0.230    0.074 0.073  9.755 1.000 0.002
## age_cen                     0.053    0.015 0.015 11.807 1.000 0.001
## factor(gender)Female        0.282    0.257 0.250  1.202 1.000 0.273
## factor(youthAny)1           0.315    0.330 0.329  0.911 1.000 0.340
## minister_exp_cum_y_lag      0.098    0.040 0.039  5.892 1.000 0.015
## factor(parlTen_cum2)1      -0.277    0.249 0.246  1.241 1.000 0.265
## factor(education_dum)Lowe -0.035    0.277 0.269  0.016 1.000 0.899
## factor(CabinetType)Majori   0.142    0.223 0.222  0.406 1.000 0.524
## factor(structure)Coalitio -0.377    0.258 0.256  2.134 1.000 0.144
## factor(reshuffle)1         -0.353    0.493 0.489  0.513 1.000 0.474
## frailty(jurisdiction)          NA       NA    NA 14.991 6.964 0.035
```

```
# This will download some data on first run
if(any(grepl(".html", list.files("./data/seats/")))==FALSE){
  source("./data/seats/getseats.R")
}
load("./data/seats/seats.rda")

ministers <- merge(x = ministers, y = seats, by.x = c("party", "election_year"),
                   by.y = c("party_name", "election_year"), all.x = TRUE)

seats <- coxph(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) + seats +
                      frailty(jurisdiction),
                    data=ministers, subset=prime_minister==0 & nsd_id!=299)
round(summary(seats)[["coefficients"]], digits = 3)
```

```
##                              coef se(coef)   se2  Chisq    DF     p
```

```
## resigcalls                 0.240    0.073 0.073 10.784 1.000 0.001
## age_cen                    0.053    0.015 0.015 11.792 1.000 0.001
## factor(gender)Female       0.275    0.256 0.249  1.152 1.000 0.283
## factor(youthAny)1          0.299    0.330 0.328  0.824 1.000 0.364
## minister_exp_cum_y_lag     0.087    0.040 0.039  4.682 1.000 0.030
## factor(parlTen_cum2)1     -0.267    0.248 0.244  1.164 1.000 0.281
## factor(education_dum)Lowe -0.033    0.277 0.269  0.015 1.000 0.904
## factor(CabinetType)Majori  0.117    0.239 0.236  0.242 1.000 0.623
## factor(structure)Coalitio -0.209    0.441 0.430  0.224 1.000 0.636
## seats                      0.004    0.008 0.008  0.229 1.000 0.632
## frailty(jurisdiction)         NA       NA    NA 13.883 6.645 0.044
```

Resiganation call coding scheme

The table below shows the search strings for aquiring the resignation calls. Importantly, the matched articles were read and subjectively evaluated to be a resignation call or not – not all matched articles were counted as resignation calls.

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

Ministerial jurisdiction categorization

Jurisdiction	**Title (ENG) – Minister of...**	**Title (NOR)**
Administration	Government Administration	Administrasjonsminister
	Labour and Government Administration	Arbeids- og administrasjonsminister
	Labour and Social Inclusion	Arbeids- og inkluderingsminister
	Consumption and Government Administration	Forbruker- og administrasjonsminister
	Supply and Reconstruction	Forsyning- og gjenreisningsminister
	Reform	Fornyingsminister
	Planning	Planleggingsminister
	Labour	Arbeidsminister
	Ministers without portfolio	Minister uten porteføljе

Jurisdiction	Title (ENG) – Minister of...	Title (NOR)
Agriculture	Agriculture	Landbruksminister
Culture	Culture	Kulturminister
Defense	Defense	Forsvarsminister
Education	Research and Higher Education	Forsknings- og høyere utd.sminister
	Education and Church Affairs	Kirke- og undervisningsminister
	Education and Research	Kunnskapsminister
Environment	the Environment	Miljøvernminister
Finance	Finance	Finansminister
	Prices	Prisminister
Foreign affairs	International Development	Bistandsminister
	Human Rights	Menneskerettighetsminister
	Foreign Affairs	Utenriksminister
	International Development	Utviklingsminister
Health	Health	Helseminister
Industry	Industry	Industriminister
	Trade and Industry	Næringsminister
	Petroleum and Energy	Olje- og energiminister
Justice	Justice	Justisminister
Regional	Local Government	Kommunalminister
	Rebuilding Finnmark	Minister for gjenoppb. av Finnmark
Sea and fish	Fisheries	Fiskeriminister
	Maritime Law	Havrettsminister
	Shipping	Skipsfartsminister
Social	Children and Family Affairs	Barne- og familieminister
	Family Affairs and Consumption	Familie- og forbruksminister
	Social Affairs	Sosialminister
Trade	Trade	Handelsminister
Transport	Transport and Communications	Samferdselsminister