

Online appendix

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2016-09-19

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 plotting 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)

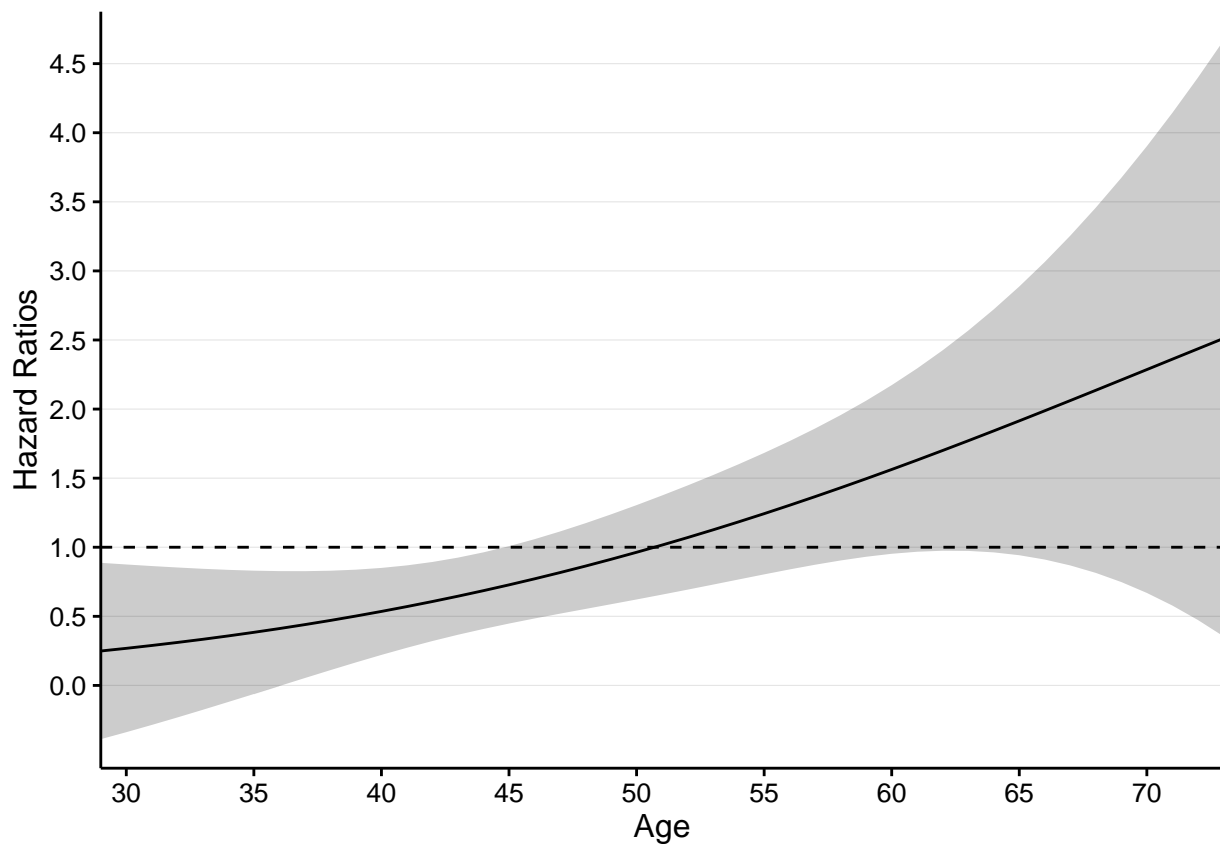
library(ggplot2)

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 acquiring 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*”
	“tak* av”
	“tre* tilb*”
	“avsett*”
	“avsatt”
	“skift* ut”
	“mistill*”