Individual-level analysis: simple models

Part of the final project for AQMSS II

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```
source(here::here("utilities", "check_packages.R"))
source(here::here("utilities", "functions.R"))
conflicts_prefer(dplyr::filter)
```

```
ep_raw_dep <- read_rds(here("data", "data_built", "ep_raw_dep.rds"))
data_country <- read_rds(here("data", "data_built", "data_country.rds"))</pre>
```

```
"result_trust_binNo" =
"Trust in the result: No (ref Yes)")
```

Multinomial

```
gc()
```

```
used (Mb) gc trigger (Mb) max used (Mb)
Ncells 5038585 269.1 8854650 472.9 7004018 374.1
Vcells 12085234 92.3 39626415 302.4 41210847 314.5
```

```
modelsummary(list("Fixed Effects" = m2.fe),
    output = "kableExtra",
    stars = T, shape = term ~ response,
    coef_map = coef_map_default,
    gof_map = c("nobs", "adj.r.squared", "bic", "rmse")) |>
    kable_styling(latex_options = c("scale_down"))
```

Table 1: Binary outcomes, linear models, naive approach

	Vote Putin	Decline to Answer	Putin or Declined	Vote Davankov	Spoil the ballot	Vote Davankov or spoil
Sex: Female	0.010***	0.008***	0.018***	-0.042***	0.028***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.004)	(0.003)	(0.002)
Sex: Other	0.005	0.003	0.008	-0.087***	0.063**	-0.024+
	(0.012)	(0.013)	(0.012)	(0.023)	(0.022)	(0.014)
Age: 18-24 (ref 25-44)	-0.003	0.000	-0.003	0.005	-0.006	-0.001
	(0.002)	(0.002)	(0.003)	(0.006)	(0.006)	(0.004)
Age: 45-65 (ref 25-44)	0.044***	0.015***	0.059***	-0.154***	0.091***	-0.063***
	(0.004)	(0.004)	(0.003)	(0.006)	(0.005)	(0.004)
Age: $65 + (\text{ref } 25\text{-}44)$	0.064***	0.029***	0.093***	-0.152***	0.053***	-0.099***
	(0.008)	(0.007)	(0.005)	(0.007)	(0.006)	(0.005)
Took < 1 hour to get to the voting station	0.001	0.013***	0.014***	-0.013***	-0.004	-0.017***
	(0.002)	(0.002)	(0.002)	(0.004)	(0.004)	(0.002)
Moved after March 2022 (ref before 2014)	-0.048***	-0.020***	-0.067***	0.169***	-0.088***	0.081***
	(0.003)	(0.003)	(0.003)	(0.006)	(0.005)	(0.004)
Moved after March 2019 but before March 2022 (ref before 2014)	-0.042***	-0.017***	-0.059***	0.113***	-0.051***	0.062***
	(0.004)	(0.004)	(0.004)	(0.007)	(0.006)	(0.004)
Moved after March 2014 but before March 2019 (ref before 2014)	-0.034***	-0.016***	-0.049***	0.050***	-0.001	0.049***
	(0.004)	(0.004)	(0.004)	(0.007)	(0.007)	(0.005)
Didn't move - tourist, lives in Russia (ref before 2014)	0.002	-0.015*	-0.013*	0.077***	-0.070***	0.007
	(0.007)	(0.007)	(0.006)	(0.009)	(0.007)	(0.007)
Trust in the result: Don't know (ref Yes)	-0.666***	0.031***	-0.634***	0.436***	0.136***	0.572***
	(0.008)	(0.009)	(0.010)	(0.011)	(0.007)	(0.011)
Trust in the result: No (ref Yes)	-0.731***	-0.081***	-0.812***	0.458***	0.328***	0.786***
	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)
Num.Obs.	54 111	54111	54 111	54 111	54 111	54111
R2 Adj.	0.726	0.047	0.763	0.291	0.082	0.668
BIC	-24139.2	-15371.5	-20960.5	59423.4	50050.2	2406.8
Log.Lik.	12145.880	7762.046	10556.535	-29635.417	-24948.803	-1127.086
RMSE	0.19	0.21	0.20	0.42	0.38	0.25

⁺ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 2: Multinomial regression, naive approach

	Naive approach						
	Davankov	Declined to answer	Haritonov	Slutsky	Spoiled ballot	Tore up/tool	
Sex: Female	-0.565***	-0.070	-0.590***	-0.471***	-0.339***	-0.691***	
	(0.056)	(0.052)	(0.084)	(0.102)	(0.059)	(0.132)	
Sex: Other	-0.503	-0.045	-0.130	0.326	0.022	0.400	
	(0.314)	(0.267)	(0.466)	(0.489)	(0.324)	(0.588)	
Age: 18-24 (ref 25-44)	0.114	0.106	0.069	0.384*	0.087	0.423*	
	(0.105)	(0.111)	(0.147)	(0.161)	(0.109)	(0.203)	
Age: 45-65 (ref 25-44)	-1.308***	-0.213***	-0.769***	-0.733***	-0.452***	-0.171	
	(0.069)	(0.061)	(0.119)	(0.147)	(0.073)	(0.179)	
Age: $65 + (\text{ref } 25\text{-}44)$	-1.870***	-0.091	-0.507**	-0.800**	-0.871***	-0.414	
	(0.118)	(0.076)	(0.183)	(0.248)	(0.127)	(0.383)	
Took < 1 hour to get to the voting station	-0.326***	0.163**	-0.236**	-0.169	-0.323***	-0.208	
	(0.062)	(0.059)	(0.091)	(0.111)	(0.064)	(0.139)	
Moved after March 2022 (ref before 2014)	1.877***	0.623***	0.895***	1.086***	1.120***	1.083***	
	(0.074)	(0.071)	(0.115)	(0.146)	(0.078)	(0.193)	
Moved after March 2019 but before March 2022 (ref before 2014)	1.215***	0.209*	0.638***	0.814***	0.689***	0.975***	
	(0.088)	(0.087)	(0.133)	(0.166)	(0.092)	(0.212)	
Moved after March 2014 but before March 2019 (ref before 2014)	0.759***	-0.012	0.265 +	0.653***	0.532***	0.708**	
,	(0.096)	(0.093)	(0.151)	(0.179)	(0.100)	(0.234)	
Didn't move - tourist, lives in Russia (ref before 2014)	0.332**	-0.244*	-0.069	0.517*	-0.524***	-0.206	
	(0.113)	(0.099)	(0.201)	(0.216)	(0.130)	(0.395)	
Trust in the result: Don't know (ref Yes)	4.100***	2.287***	3.350***	3.594***	3.890***	2.617***	
,	(0.105)	(0.110)	(0.186)	(0.192)	(0.156)	(0.667)	
Trust in the result: No (ref Yes)	7.153***	3.648***	5.779***	5.259***	8.187***	7.097***	
,	(0.099)	(0.100)	(0.145)	(0.161)	(0.130)	(0.341)	
Num.Obs.	54 111						
R2 Adj.	0.533						
BIC	89346.1						
RMSE	0.25						

⁺ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 3: Multinomial regression, fixed effects

	Fixed Effects						
	Davankov	Declined to answer	Haritonov	Slutsky	Spoiled ballot	Tore up/took	
Sex: Female	-0.452***	0.092+	-0.403***	-0.321**	-0.248***	-0.644***	
	(0.059)	(0.054)	(0.090)	(0.113)	(0.062)	(0.147)	
Sex: Other	-0.679*	-0.232	-0.302	0.196	-0.174	0.257	
	(0.318)	(0.274)	(0.489)	(0.517)	(0.328)	(0.617)	
Age: 18-24 (ref 25-44)	0.072	0.088	-0.115	0.324+	0.001	0.466*	
	(0.112)	(0.117)	(0.164)	(0.180)	(0.116)	(0.227)	
Age: 45-65 (ref 25-44)	-1.289***	-0.287***	-0.735***	-0.715***	-0.439***	0.004	
	(0.073)	(0.063)	(0.127)	(0.163)	(0.077)	(0.195)	
Age: $65 + (\text{ref } 25\text{-}44)$	-1.757***	-0.387***	-0.350+	-0.763**	-0.811***	-0.399	
	(0.120)	(0.082)	(0.197)	(0.292)	(0.133)	(0.465)	
Took < 1 hour to get to the voting station	-0.030	0.273***	0.113	0.075	0.001	0.050	
	(0.071)	(0.066)	(0.107)	(0.134)	(0.073)	(0.172)	
Moved after March 2022 (ref before 2014)	2.183***	0.796***	1.319***	1.300***	1.647***	1.704***	
·	(0.087)	(0.083)	(0.137)	(0.179)	(0.092)	(0.240)	
Moved after March 2019 but before March 2022 (ref before 2014)	1.399***	0.402***	0.869***	0.974***	0.929***	1.316***	
,	(0.096)	(0.093)	(0.146)	(0.187)	(0.100)	(0.248)	
Moved after March 2014 but before March 2019 (ref before 2014)	0.854***	0.154	0.378*	0.846***	0.619***	1.030***	
,	(0.101)	(0.096)	(0.161)	(0.195)	(0.106)	(0.260)	
Didn't move - tourist, lives in Russia (ref before 2014)	0.786***	0.231*	0.373+	0.949***	0.197	0.609	
,	(0.126)	(0.109)	(0.225)	(0.254)	(0.142)	(0.467)	
Trust in the result: Don't know (ref Yes)	3.918***	2.318***	3.527***	3.927***	3.713***	-3.139***	
,	(0.109)	(0.115)	(0.198)	(0.225)	(0.159)	(0.005)	
Trust in the result: No (ref Yes)	7.630***	4.343***	6.554***	6.311***	8.689***	11.848***	
,	(0.137)	(0.138)	(0.184)	(0.215)	(0.160)	(2.603)	
Num.Obs.	54 111						
R2 Adj.	0.542						
BIC	91620.5						
RMSE	0.25						

⁺ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

```
opposition = dichotomy(
    systemic = c("Slutsky", "Haritonov"),
    nonsystemic = c("Davankov", "Spoiled ballot")),
    nonsystemic = c("Spoiled ballot", "Davankov"),
    systemic = c("Haritonov", "Slutsky"))
```

```
save(list = c("m3.nested.naive", "m3.nested.fe"),
file = here("data", "data_built", "nl_fe.RData"))
```

Table 4: Nested logit results, naive approach

	Don't answer vs answer	Putin vs everyone	Non-systemic vs systemic opposition	Spoiled vs Davankov	Slutsky vs Haritonov
Sex: Female	0.192***	0.510***	0.022	-0.220***	0.155
	(0.043)	(0.069)	(0.056)	(0.024)	(0.115)
Sex: Other	0.088	-0.138	-0.383	-0.517***	0.423
	(0.234)	(0.372)	(0.298)	(0.146)	(0.573)
Age: 18-24 (ref 25-44)	0.004	-0.132	-0.079	0.025	0.327+
	(0.080)	(0.118)	(0.085)	(0.036)	(0.170)
Age: 45-65 (ref 25-44)	0.249***	1.336***	-0.308***	-0.836***	0.007
	(0.057)	(0.083)	(0.087)	(0.039)	(0.179)
Age: $65 + (ref 25-44)$	0.339***	1.542***	-0.939***	-0.959***	-0.424
	(0.074)	(0.127)	(0.154)	(0.106)	(0.305)
Took < 1 hour to get to the voting station	0.349***	0.368***	-0.107+	-0.001	0.034
	(0.049)	(0.075)	(0.059)	(0.024)	(0.122)
Moved after March 2022 (ref before 2014)	-0.412***	-1.991***	0.741***	0.742***	0.163
	(0.062)	(0.087)	(0.080)	(0.036)	(0.166)
Moved after March 2019 but before March 2022 (ref before 2014)	-0.294***	-1.413***	0.401***	0.513***	0.148
	(0.073)	(0.103)	(0.090)	(0.041)	(0.187)
Moved after March 2014 but before March 2019 (ref before 2014)	-0.227**	-0.816***	0.292**	0.217***	0.387+
	(0.078)	(0.116)	(0.102)	(0.045)	(0.208)
Didn't move - tourist, lives in Russia (ref before 2014)	-0.200*	-0.530***	-0.001	0.858***	0.542*
	(0.090)	(0.130)	(0.141)	(0.084)	(0.274)
Trust in the result: Don't know (ref Yes)	0.438***	-4.040***	0.708***	0.403**	0.253
	(0.080)	(0.105)	(0.127)	(0.140)	(0.239)
Frust in the result: No (ref Yes)	-1.381***	-7.365***	1.913***	-0.809***	-0.548**
	(0.057)	(0.099)	(0.094)	(0.106)	(0.183)
Num.Obs.	53 824	51 202	42 363	40 946	1417
AIC	18897.4	7086.4	11 764.2	45 539.8	1848.3
BIC	19 013.0	7201.3	11 876.7	45 651.8	1916.7
RMSE	0.21	0.13	0.18	0.43	0.47

⁺ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 5: Nested logit results, fixed effects

	Don't answer vs answer	Putin vs everyone	Non-systemic vs systemic opposition	Spoiled vs Davankov	Slutsky vs Haritonov
Sex: Female	0.275***	0.481***	0.019	-0.195***	0.121
	(0.044)	(0.072)	(0.057)	(0.024)	(0.120)
Sex: Other	0.039	0.208	-0.371	-0.455**	0.331
	(0.240)	(0.369)	(0.301)	(0.146)	(0.589)
Age: 18-24 (ref 25-44)	-0.008	0.019	-0.114	0.072+	0.335+
	(0.082)	(0.126)	(0.088)	(0.037)	(0.183)
Age: 45-65 (ref 25-44)	0.172**	1.304***	-0.294***	-0.827***	0.011
	(0.059)	(0.087)	(0.088)	(0.039)	(0.190)
Age: 65 + (ref 25-44)	0.161*	1.501***	-0.994***	-0.952***	-0.461
	(0.078)	(0.132)	(0.159)	(0.107)	(0.322)
Took < 1 hour to get to the voting station	0.310***	0.071	-0.086	-0.028	-0.114
	(0.055)	(0.085)	(0.067)	(0.027)	(0.144)
Moved after March 2022 (ref before 2014)	-0.363***	-2.357***	0.820***	0.539***	0.093
	(0.069)	(0.103)	(0.090)	(0.040)	(0.191)
Moved after March 2019 but before March 2022 (ref before 2014)	-0.217**	-1.467***	0.419***	0.438***	0.149
	(0.075)	(0.110)	(0.093)	(0.042)	(0.200)
Moved after March 2014 but before March 2019 (ref before 2014)	-0.179*	-0.798***	0.299**	0.213***	0.455*
	(0.081)	(0.121)	(0.103)	(0.046)	(0.220)
Didn't move - tourist, lives in Russia (ref before 2014)	-0.002	-0.997***	0.134	0.633***	0.410
	(0.098)	(0.146)	(0.150)	(0.088)	(0.300)
Trust in the result: Don't know (ref Yes)	0.521***	-3.955***	0.716***	0.392**	0.241
	(0.083)	(0.110)	(0.129)	(0.141)	(0.250)
Trust in the result: No (ref Yes)	-1.293***	-7.204***	1.891***	-0.804***	-0.552**
	(0.060)	(0.102)	(0.095)	(0.106)	(0.193)
Num.Obs.	53 824	51 202	42 363	40 946	1417
AIC	18 166.4	6724.4	11769.4	45257.7	1900.4
BIC	18 833.4	7387.7	12 418.5	45904.2	2278.8
RMSE	0.21	0.13	0.18	0.43	0.46

⁺ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001