Graphs document

Final Paper for AQMSS II

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source(here::here("utilities", "check_packages.R"))
source(here::here("utilities", "functions.R"))


data_country <- read_rds(here("data", "data_built", "data_country.rds"))
data_built <- read_rds(here("data", "data_built", "data_built_.rds"))
ep_raw <- read_rds(here("data", "data_built", "ep_raw_dep.rds"))
world <- ne_countries(scale = "medium", returnclass = "sf") |>
  mutate(countrycode_c = countrycode(as.numeric(iso_n3_eh), origin = "iso3n",
                                     destination = "iso3c"))
load(here("data", "data_raw", "imp1.RData"))
load(here("scripts", "models", "m1_log.rds"))


data_figure1 <- data_country |>
  full_join(world, by = "countrycode_c") |>
  st_as_sf() |>
  mutate(putin_bins = cut(putin_full, c(0, 25, 50, 75, 100)))


data_table1 <- ep_raw |>
  select(`Vote Choice` = vote,
         `Gender` = sex,
         `Age bin` = age_bin,
         `Time living out of Russia` = out_of_Russia_time,
         `Time took to get to the voting station` = time_to_vs,
         `Time took to get to the voting station: less than hour` =
           time_to_vs.less_than_hour,
         `Time took to get to the voting station: more than 4 hours`  =
           time_to_vs.more_than_4hours,
         `Trust in the election result` = result_trust,
         `Binary trust in the election result` = result_trust_bin) |>
  mutate(across(everything(), ~ if_else(is.na(.), "No Data", .)))


data_table2 <- data_country |>
  ungroup() |>
  transmute(`Share of Orthodox Christians, 2011` = orthodox_share,
         `VDem Polyarchy, 2022` = vdem_polyarchy_2022,
         `BMR Democracy, 2020` = factor(bmr_dem_2020,
                                        levels = 0:1,
                                        labels = c("Not a democracy",
                                                   "Democracy"), exclude = NULL),
         `Maddison project GDPpc, 2018` = mad_gdppc_2018,
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        `WDI GDPpc, 2020` = wdi_gdpcapcon2015_2022,
        `Level of military obligations, 2018` =
          factor(obl_type, levels = 0:4,
                 labels = c("None",
                            "One type of treaty signed",
                            "Two types of treaties signed",
                            "Three types of treaties signed",
                            "All types of treaties (Nonaggression, Consultations, Neutrality, Defense obligations) signed"),
        `Share of exports to country, 2022` = export_share,
        `Share of imports from country, 2022` = import_share,
        `"Friendliness" status` = factor(friendly_status,
                                         labels = c("Neutral", "Unfriendly",
                                                    "Friendly", "No Data"),
                                         exclude = NULL),
        `Help to Ukraine` = factor(help, levels = 0:1,
                                   labels = c("No", "Yes"), exclude = NULL),
        `Russian military or PMC presence in country` =
          factor(military_dummy, levels = 0:1,
                 labels = c("No", "Yes"), exclude = NULL),
        `Weighted geodesic distance to Russia` = dist,
        `Mean departures to country, 2010-2022` = mean_trips)


data_table4 <- data_built |>
  transmute(`Share of Orthodox Christians, 2011` = orthodox_share,
        `VDem Polyarchy, 2022` = vdem_polyarchy_2022,
        `Maddison project GDPpc, 2018` = mad_gdppc_2018,
        `WDI GDPpc, 2020` = wdi_gdpcapcon2015_2022,
        `Share of exports to country, 2022` = export_share,
        `Share of imports from country, 2022` = import_share,
        `Weighted geodesic distance to Russia` = dist,
        `Mean departures to country, 2010-2022` = mean_trips,
        ep = factor(if_else(is.na(ep), 0, ep), levels = 0:1, labels = c("No", "Yes")))

datasummary_balance(~ ep, output = "kableExtra",
                    data = data_table4, stars = T,
                    dinm_statistic = "p.value") |>
  kable_styling(latex_options = c("scale_down", "hold_position"))
```

	No (N=180)		Yes (N=65)			
	Mean	Std. Dev.	Mean	Std. Dev.	Diff. in Means	p
Share of Orthodox Christians, 2011	0.1	0.2	0.1	0.3	0.0	0.473
VDem Polyarchy, 2022	0.4	0.2	0.7	0.2	0.3***	<0.001
Maddison project GDPpc, 2018	17 324.9	18 809.5	33 018.3	16 350.0	15 693.3***	<0.001
WDI GDPpc, 2020	11 166.6	15 611.1	32 617.3	24 184.7	21 450.7***	<0.001
Share of exports to country, 2022	1.3	2.8	1.7	2.0	0.4	0.206
Share of imports from country, 2022	1.6	4.6	1.5	1.9	−0.2	0.709
Weighted geodesic distance to Russia	5323.1	3180.9	3452.4	3317.5	−1870.7***	<0.001
Mean departures to country, 2010-2022	87 013.2	193 322.9	180 236.9	264 160.0	93 223.7*	0.011

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modelplot(m1.log, coef_map = c("vdem_polyarchy_2022" = "V-Dem Polyarchy",
                               "log(mad_gdppc_2018)" = "Log GDPpc",
                               "orthodox_share" = "% of Orthodox",
                               "log(dist)" = "Log geodesic distance",
                               "log(voters_in_list)" = "Log registered voters",
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                          "log(mean_trips)" = "Log departures to country"),
          color = "#bf212f")
```

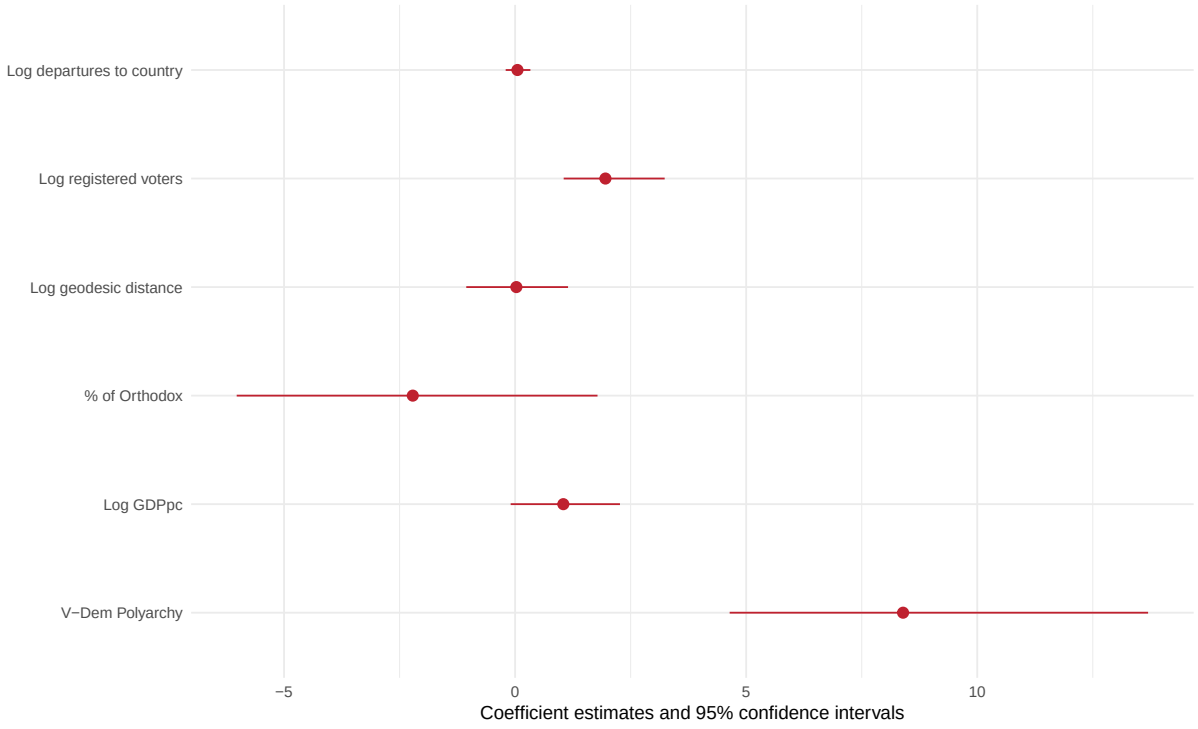


```
data_figure2 <- data_country |>
  ungroup() |>
  transmute(`% Orthodox` = orthodox_share,
            `Polyarchy` = vdem_polyarchy_2022,
            `Log GDPpc` = log(mad_gdppc_2018),
            `Share exports` = export_share,
            `Share imports` = import_share,
            `Friendly status` = factor(friendly_status),
            `Help to Ukraine` = factor(help, levels = 0:1,
                                       labels = c("No", "Yes")),
            `Military` =
              factor(military_dummy, levels = 0:1,
                     labels = c("No", "Yes")),
            `Log distance` = log(dist),
            `Log mean trips` = log(mean_trips),
            `Conducted Exit Poll` = factor(ep, levels = 0:1, labels = c("No", "Yes"))) |>
  drop_na()


imp1_cmp <- complete(imp1, "long", include = T) |>
  mutate(imputed = factor(if_else(`.imp` > 0, 1, 0),
                          labels = c("Observed", "Average Imputed")),
         imp = factor(if_else(`.imp` == 0, "Observed", as.character(`.imp`)))) |>
  filter(!countryname_en %in% c("Australia", "New Zealand"))

data_figure3 <- imp1_cmp |>
```

```
  group_by(imp) |>
  summarize(across(c(sex, age_bin, out_of_Russia_time,
                     time_to_vs.less_than_hour, time_to_vs.more_than_4hours,
                     result_trust_bin), ~ sum(is.na(.)))) |>
  select(-imp) |>
  distinct() |>
  rownames_to_column() |>
  pivot_longer(cols = c(-rowname)) |>
  mutate(name = factor(name,
                       levels = c("sex", "age_bin", "out_of_Russia_time",
                                  "time_to_vs.less_than_hour",
                                  "time_to_vs.more_than_4hours",
                                  "result_trust_bin"),
                       labels = c("Gender", "Age", "Time out of Russia",
                                  "Time to voting station < 1 hour",
                                  "Time to voting station > 4 hours",
                                  "Trust in the result")),
         rowname = factor(rowname, levels = c(1, 2), labels = c("Imputed",
                                                                "Observed")))


data_figure4 <- data_country |>
  ungroup() |>
  mutate(bmr_dem_2020 = factor(bmr_dem_2020,
                                     levels = 0:1,
                                     labels = c("No",
                                                "Yes"), exclude = NULL),
         obl_type = factor(obl_type, levels = 0:4,
                  labels = c("None",
                             "One",
                             "Two",
                             "Three",
                             "All"), exclude = NULL),
         friendly_status = factor(friendly_status),
         help = factor(help, levels = 0:1,
                                  labels = c("No", "Yes"), exclude = NULL),
         military_dummy =
           factor(military_dummy, levels = 0:1,
                  labels = c("No", "Yes"), exclude = NULL))

  labelled::var_label(data_figure4) <- list(
    bmr_dem_2020 = "BMR",
    obl_type = "Oblig",
    friendly_status = "Status",
    help = "Help",
    military_dummy = "Mil",
    orthodox_share = "Orth",
    vdem_polyarchy_2022 = "VDem",
    mad_gdppc_2018 = "Mad",
    wdi_gdpcapcon2015_2022 = "WDI",
    export_share = "Exp",
    import_share = "Imp",
    dist = "Dist",
    mean_trips = "Trips")


save.image(file = here("paper", "graphs_figures.RData"))
```