Lauren Gerber Master's Thesis

2025-04-24

Master's Thesis Script

Install necessary libraries, set options, and download GDP and Democracy Data from R packages.

```
library(devtools)
library(tidyverse)
library(forcats)
devtools::install_github("vdeminstitute/vdemdata")
library(vdemdata)
library(car)
library(gtsummary)
library(WDI)
library(psych)

#set to not report in scientific notation
options(scipen = 5)
```

Load Datasets, Rename Variables, and Keep Only Relevant Variables/Years for GDP and VDEM Datasets.

```
#Make a data-set with chosen countries' GDP per capita adjusted for inflation and purchasing power parity.
#limit year to 2023, the end of survey collection.
gdp<- WDI(indicator="NY.GDP.PCAP.PP.KD", country=c("USA", "CAN", "AUS", "DEU", "ZAF", "BRA"), start=2023, end=2023)

#rename "country" to "country_name" so we can later merge the data. Rename gdp to a simpler name.
gdp<- gdp %>% rename(country_name=country, gdp=NY.GDP.PCAP.PP.KD)

#Load the vdem data-set from the package.
vdem<- vdem

#keep only chosen countries, limit the year to 2023, and keep only the liberal democracy index in the VDEM data-set.
#Rename "United States of America" to "United States" to keep consistency across data-sets.

countries_to_keep= c("Brazil", "Canada", "Germany", "South Africa", "United States of America", "Australia")
vdem<- vdem %>% filter(country_name %in% countries_to_keep & year=="2023")
vdem<- vdem %>% select(country_name, v2x_libdem, v2x_libdem_codelow) %>% mutate(country_name=as.factor(country_name)) %>%
  mutate(country_name=str_replace(country_name, "United States of America", "United States"))

#Load the conspiracy data-set.
conspdata<- read_csv("data/CCRS Dataset.csv")

#rename variables of interest to more intuitive names.
conspdata<- conspdata %>% rename(country_name=ID_Q2, Age=ID_Q3, Gender=ID_Q4, Education=ID_Q5, SES=ID_Q8, Employment=ID_Q9, leftright
=ID_Q10,
                                 polinterest=ID_Q11, satisfactiongov=ID_Q15, satisfactiondem=ID_Q16, trustgov=ID_Q18_1, trustpol=ID_Q18_2,
                                 trustelections=ID_Q18_4,elitepldif=ID_Q23_3, Religiosity=ID_Q25, NCCmean=ID_Q30, conspbeliefavg=ID_Q32,
                                 govmurder=ID_Q32_1, worldcontrol=ID_Q32_2, govterrorism=ID_Q32_6, war=ID_Q32_7, govcrime=ID_Q32_10,
                                 significantevents=ID_Q32_11, drugspublic=ID_Q32_13, infohiding=ID_Q32_14, conspmentalityavg=ID_Q33)
```

Make Indices For Political Trust and Political Conspiracy Beliefs and Test Reliability Index.

```
#make average political trust index- trust in government and trust in politicians (0-10, no trust-a lot of trust).
conspdata$average_trust <- rowMeans(conspdata[, c("trustgov", "trustpol")])

#check reliability of index- good levels of internal consistency (0.89).
average_trust_index<- data.frame(conspdata$trustpol, conspdata$trustgov)
alphaindex<- alpha(average_trust_index)
summary(alphaindex)
```

```
##
## Reliability analysis
##  raw_alpha std.alpha G6(smc) average_r S/N    ase mean  sd median_r
##       0.89      0.89     0.8       0.8 7.8 0.0025  3.6 2.8      0.8
```

```
#make political conspiracy index (0-4, definitely not true-definitely true).
#check reliability of index- good levels of internal consistency (0.82).

conspdata$average_polconspiracies <- rowMeans(conspdata[, c("worldcontrol", "war", "significantevents")])

polconspiracies_index<- data.frame(conspdata$worldcontrol,conspdata$war, conspdata$significantevents)
alphaindex2<- alpha(polconspiracies_index)
summary(alphaindex2)
```

```
##
## Reliability analysis
##  raw_alpha std.alpha G6(smc) average_r S/N    ase mean  sd median_r
##       0.82      0.82    0.76      0.61 4.7 0.0034    2 1.1      0.58
```

Merge Datasets, Check for Duplicates, and Change to Correct Variable Types.

```
#make a variable to drop non-democratic countries.
drop= c("Morocco", "Lebanon")

#make categorical variables categorical and drop non-democratic countries.
conspdata<- conspdata %>% mutate(Gender=as.factor(Gender), Education=as.factor(Education),
                                 SES=as.factor(SES), Employment=as.factor(Employment),
                                 Religiosity=as.factor(Religiosity)) %>% filter(!(country_name %in% drop))

#merge conspiracy data with vdem data.
merged_data<- left_join(conspdata, vdem, by="country_name")

#merge gdp data with merged data.
merged_data2<- left_join(merged_data, gdp, by="country_name")

#check for duplicates.
duplicates_all <- merged_data2 %>% filter(duplicated(merged_data2))
#head(duplicates_all)
```

Make Object With Variables for Regression, Rescale Political Efficacy Variable for Easier Interpretation.

```
#make object of variables to include in regression and graphs.

regressiondata<- merged_data2 %>% select(average_polconspiracies, v2x_libdem, Gender, Age, Education, Employment,
                                         SES, leftright, eliteppldif, average_trust, Religiosity, NCCmean, gdp, country_name) %>% mutate(country_name=as.factor(country_
name))

#elite people difference currently measured (1-5 strong disagreement (high efficacy) -> strong agreement (low efficacy)).
#reverse variable to make it more intuitive.
regressiondata$eliteppldifrescaled<- 6 - regressiondata$eliteppldif
```

Correlation Analysis.

```
#preliminary correlation analysis taking into account ordinal rankings.
#exclude country name- not included in main analysis! Only in object for graphing reasons.
corrdata<- regressiondata %>% select(average_polconspiracies, v2x_libdem, Gender, Age, Education, Employment,
                                     SES, leftright, eliteppldifrescaled, average_trust, Religiosity, NCCmean, gdp)
corrdata[] <- lapply(corrdata, function(x) as.numeric(as.character(x)))
corrmatrix<- cor(corrdata, method = "spearman", use = "pairwise.complete.obs")

#make plot of correlation matrix.
library(corrplot)
testRes = cor.mtest(corrmatrix, conf.level = 0.95)
corrplot(corrmatrix, method = 'number', type="upper", col = COL1('Blues', 10), number.cex = 0.6, p.mat = testRes$p, sig.level = 0.10,
         pch.col = '#F8766D33', diag=FALSE)
```

Rename Categories from Numbers to Names; Set and Add Reference Levels; and Multiply Quality of Democracy Score (0-1) by 100 for Ease of Interpretation.

```
#rename categories names for regression data.
regressiondata<- regressiondata %>% mutate(Gender=fct_recode(Gender, "Female"="0", "Male"= "1"), Education=fct_recode(Education, "None"="1", "Elementary"="2", "Secondary"="3", "University"="4", "Postgrad"="5"), SES=fct_recode(SES, "Lower-Class"="1", "Middle-Class"="2", "Upper-Class"="3"), Employment=fct_recode(Employment, "Full-Time"="1", "Part-Time"="2", "Retired"="3", "Unemployed"="4", "Student"="5", "Other"="9"), Religiosity=fct_recode(Religiosity, "Not Religious"="0", "Religious"="1"))


#check how many NAs in each variable, NAs could be meaningful for gender/religiosity.
regressiondata %>% summarise_all(~ sum(is.na(.)))
```

```
## # A tibble: 1 × 15
##   average_polconspiracies v2x_libdem Gender   Age Education Employment   SES
##                     <int>      <int>  <int> <int>     <int>      <int> <int>
## 1                      66          0    100     3       225          7    44
## # ℹ 8 more variables: leftright <int>, eliteppldif <int>, average_trust <int>,
## #   Religiosity <int>, NCCmean <int>, gdp <int>, country_name <int>,
## #   eliteppldifrescaled <int>
```

```
#gender=100, Religiosity=405

#calculate percentage of NAs.
colMeans(is.na(regressiondata))
```

```
## average_polconspiracies          v2x_libdem              Gender
##          0.0108232207          0.0000000000          0.0163988193
##                     Age           Education          Employment
##          0.0004919646          0.0368973434          0.0011479173
##                     SES           leftright          eliteppldif
##          0.0072154805          0.0052476222          0.0072154805
##           average_trust          Religiosity              NCCmean
##          0.0111511971          0.0664152181          0.0450967530
##                     gdp          country_name  eliteppldifrescaled
##          0.0000000000          0.0000000000          0.0072154805
```

```
#Mostly insignificant, 6.6% Religiosity.

#An NA answer for gender might not always mean non-binary... but we should create a "don't know" category for religiosity.
regressiondata$Religiosity <- fct_na_value_to_level(regressiondata$Religiosity, level = "Other/Don't Know")

#reset reference category in Education from "none" to "university".
regressiondata<- regressiondata %>% mutate(Education=fct_relevel(Education, "University"))

#multiply liberal democracy index by 100 for ease of interpretation.
regressiondata$v2x_libdemrescaled<- regressiondata$v2x_libdem *100
```

Bivariate Analysis.

```
#bivariate analysis.
lm1<- lm(formula= average_polconspiracies ~ v2x_libdemrescaled, data=regressiondata)

#table of bivariate analysis:
library(sjPlot)
modelone<-tab_model(lm1, show.se=TRUE, show.p=TRUE, show.fstat = TRUE, show.obs=TRUE,
        string.est="Coefficients", string.pred = "Variables", string.p="P-value", string.se = "Std. Error", emph.p=TRUE,
        pred.labels = c("Intercept", "Quality of Democracy"), dv.labels = "Average Belief in Political Conspiracy Theories",
        p.style="numeric_stars", CSS = list(css.thead = "text-align:center; padding-bottom:0.2cm;", css.tdata="padding:0.11cm;"))
modelone
```

Average Belief in Political Conspiracy Theories

Variables	*Coefficients*	*Std. Error*	*CI*	*P-value*
Intercept	4.76 ***	0.14	4.48 – 5.03	**<0.001**
Quality of Democracy	-0.04 ***	0.00	-0.04 – -0.03	**<0.001**
Observations		6032		
R^2 / R^2 adjusted		0.062 / 0.062		

- *p<0.05 ** p<0.01 *** p<0.001

Multivariate Analysis.

```
#analysis with controls.
lm2<- lm(formula=average_polconspiracies~v2x_libdemrescaled + Gender + Age+ Education+ Employment+ SES+ leftright+ average_trust+
         Religiosity+NCCmean + gdp, data=regressiondata)

#table of exclusionary strategy:
modeltwo<-tab_model(lm2, show.se=TRUE, show.p=TRUE, show.fstat = TRUE, show.obs=TRUE,  show.reflvl = TRUE,
                string.est="Coefficients", string.pred = "Variables", string.p="P-value", string.se = "Std. Error", emph.p=TRUE,
                pred.labels = c("Intercept", "Quality of Democracy", "Male", "Age", "No Education", "Elementary Education", "Secondary Education",
                                "Post-Grad Degree", "Employed Part-Time", "Retired", "Unemployed", "Student", "Other Employment",
                                "Middle-Class", "Upper Class", "Left-Right Scale Placement", "Average Political Trust", "Religious", "NA Religion",
                                "Average Need For Cognitive Closure", "GDP"), dv.labels = "Average Belief in Political Conspiracy Theories", p.style="numeric_st
ars", CSS = list(css.thead = "text-align:center; padding-bottom:0.2cm;", css.tdata="padding:0.11cm;"))

modeltwo
```

Average Belief in Political Conspiracy Theories

Variables	*Coefficients*	*Std. Error*	*CI*	*P-value*
Intercept	3.91 ***	0.28	3.36 – 4.45	**<0.001**
Quality of Democracy	-0.04 ***	0.00	-0.05 – -0.03	**<0.001**
Male	0.05	0.03	-0.01 – 0.11	0.076
Age	-0.01 ***	0.00	-0.01 – -0.01	**<0.001**
No Education	0.10	0.15	-0.18 – 0.39	0.485
Elementary Education	0.14 **	0.05	0.05 – 0.24	**0.004**
Secondary Education	0.08 *	0.03	0.01 – 0.15	**0.019**
Post-Grad Degree	0.03	0.04	-0.05 – 0.11	0.489
Employed Part-Time	-0.09 *	0.04	-0.18 – -0.00	**0.042**
Retired	-0.25 ***	0.05	-0.35 – -0.15	**<0.001**
Unemployed	-0.04	0.06	-0.16 – 0.07	0.448
Student	-0.04	0.08	-0.20 – 0.12	0.626

Other Employment	-0.01	0.06	-0.13 – 0.11	0.826
Middle-Class	-0.12 ***	0.03	-0.18 – -0.05	**<0.001**
Upper Class	0.07	0.07	-0.06 – 0.21	0.275
Left-Right Scale Placement	0.09 ***	0.01	0.08 – 0.10	**<0.001**
Average Political Trust	-0.07 ***	0.01	-0.08 – -0.06	**<0.001**
Religious	0.18 ***	0.03	0.12 – 0.24	**<0.001**
NA Religion	0.06	0.06	-0.05 – 0.17	0.303
Average Need For Cognitive Closure	0.26 ***	0.02	0.22 – 0.30	**<0.001**
GDP	0.00 ***	0.00	0.00 – 0.00	**<0.001**
Observations		5357		
R^2 / R^2 adjusted		0.215 / 0.212		

- *p<0.05 ** p<0.01 *** p<0.001*

Effect Size Regression.

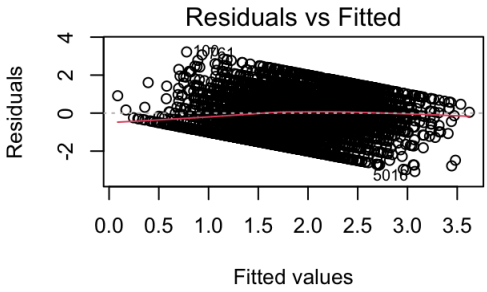
```
#normalize data to explore effect size of predictors.
scaled_merged_data<- regressiondata
numeric_cols <- sapply(scaled_merged_data, is.numeric)
scaled_merged_data[numeric_cols] <- scale(scaled_merged_data[numeric_cols])

#effect size/standardized model.
lm3<- lm(formula=average_polconspiracies~v2x_libdemrescaled + Gender + Age+ Education+ Employment+ SES+ leftright+ average_trust+
        Religiosity+NCCmean + gdp, data=scaled_merged_data)

#table without dummy variables for effect size:
standardizedmodel<-tab_model(lm3, terms=c("v2x_libdemrescaled", "Age", "leftright", "average_trust", "NCCmean", "gdp"), show.se=TRUE, show.p=TRUE, show.fstat = TRUE, show.obs=TRUE,
                string.est="Coefficients", string.pred = "Variables", string.p="P-value", string.se = "Std. Error", emph.p=TRUE,
                pred.labels = c("Quality of Democracy", "Age", "Left-Right Scale Placement", "Average Political Trust",
                                "Average Need For Cognitive Closure", "GDP"),
                dv.labels = "Average Belief in Political Conspiracy Theories",
                p.style="numeric_stars", CSS = list(css.thead = "text-align:center; padding-bottom:0.2cm;", css.tdata="padding:0.11cm;"))

standardizedmodel
```

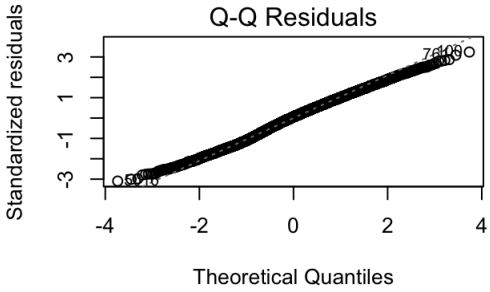
	Average Belief in Political Conspiracy Theories			
Variables	*Coefficients*	*Std. Error*	*CI*	*P-value*
Quality of Democracy	-0.27 ***	0.03	-0.33 – -0.22	**<0.001**
Age	-0.17 ***	0.02	-0.20 – -0.14	**<0.001**
Left-Right Scale Placement	0.21 ***	0.01	0.19 – 0.24	**<0.001**
Average Political Trust	-0.18 ***	0.01	-0.20 – -0.15	**<0.001**
Average Need For Cognitive Closure	0.15 ***	0.01	0.12 – 0.17	**<0.001**
GDP	0.18 ***	0.03	0.13 – 0.24	**<0.001**
Observations		5357		
R^2 / R^2 adjusted		0.215 / 0.212		

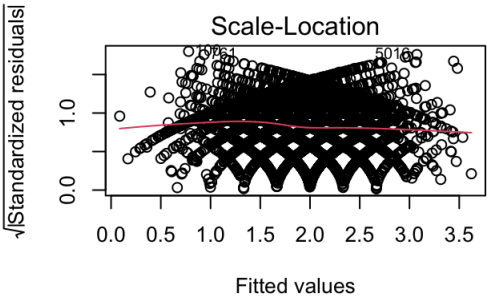
- *p<0.05 ** p<0.01 *** p<0.001*

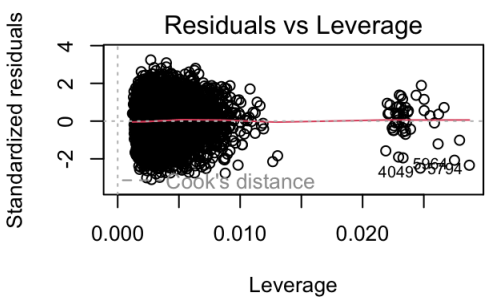
Diagnostic Plots and Multicollinearity Check.

```
#diagnostic plots for multivariate linear regression:
par(mfrow = c(2, 2))
plot(lm2)
```







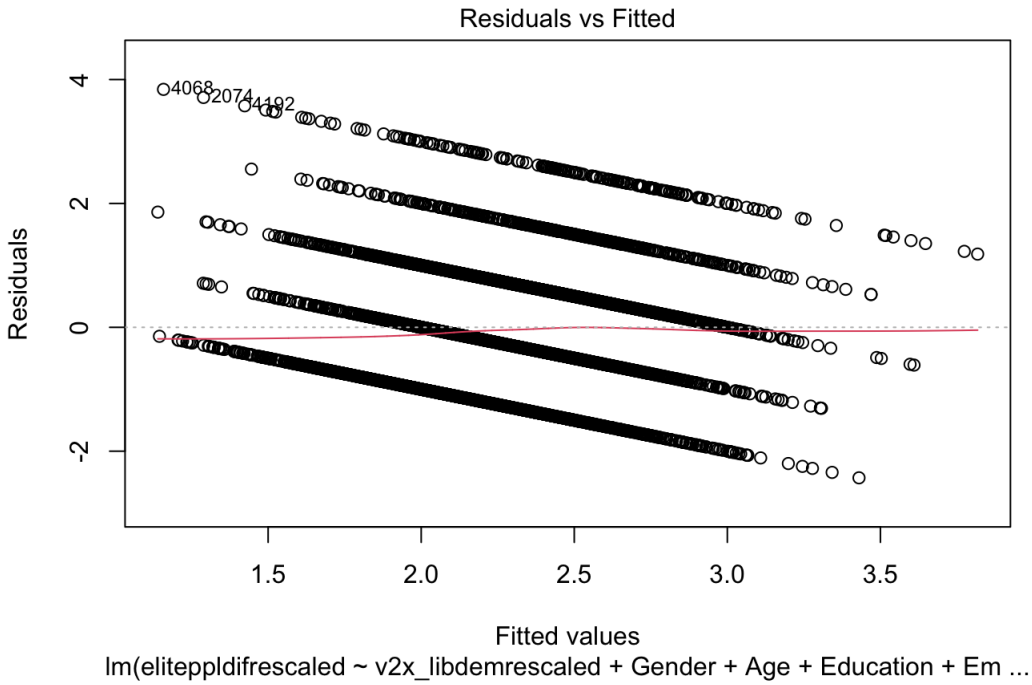


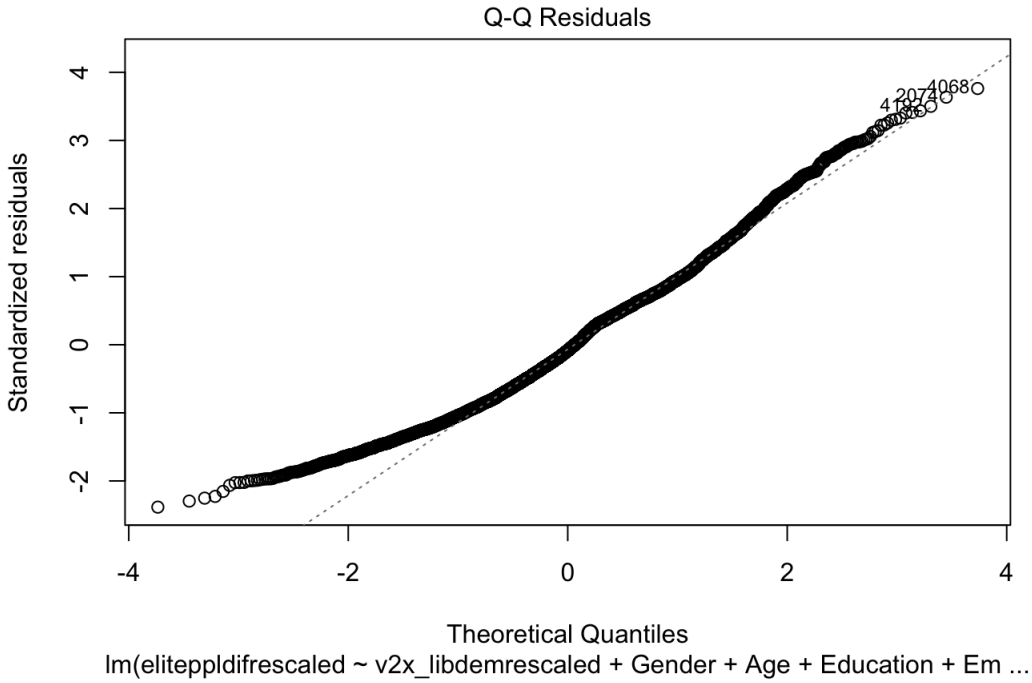

```
#testing for multicollinearity.
vif(lm2)
```

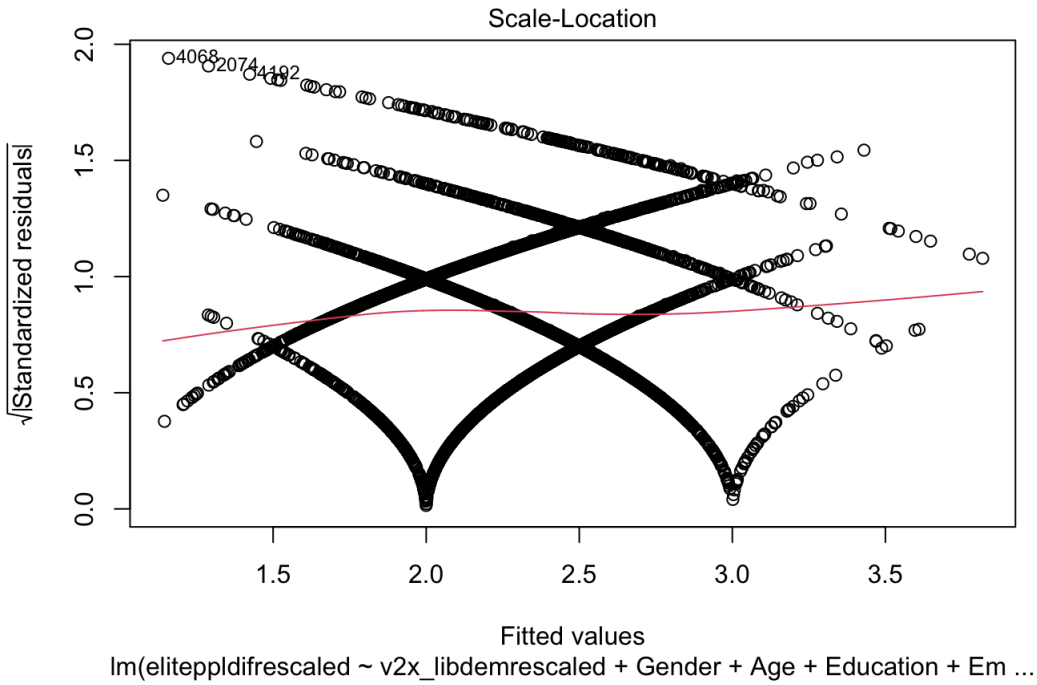
```
##                       GVIF Df GVIF^(1/(2*Df))
## v2x_libdemrescaled 4.833911  1        2.198616
## Gender             1.069307  1        1.034073
## Age                1.774169  1        1.331979
## Education          1.524515  4        1.054123
## Employment         2.111820  5        1.077620
## SES                1.237322  2        1.054680
## leftright          1.110938  1        1.054010
## average_trust      1.158371  1        1.076277
## Religiosity        1.181835  2        1.042652
## NCCmean            1.081169  1        1.039793
## gdp                4.926512  1        2.219575
```

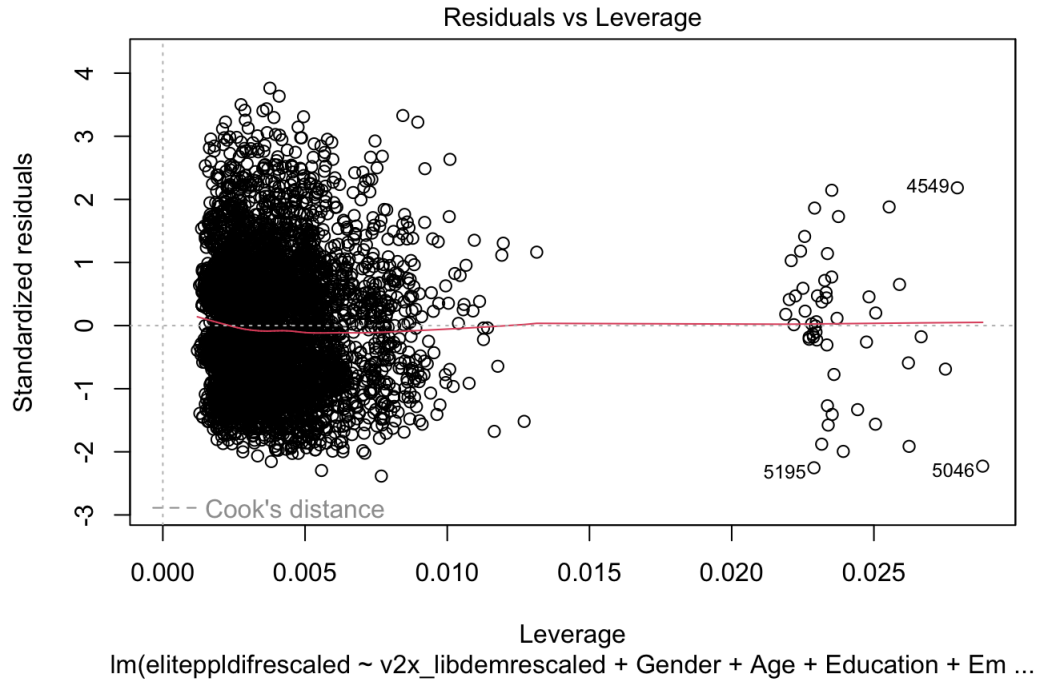
Mediation Analysis.

```
#na's dropped dataset:
#In order to run a mediation analysis, we need to have regression models of the same size. So dropping all na's before for these specific variables is neces
sary:
nasdropped<- regressiondata %>% drop_na(v2x_libdemrescaled, average_polconspiracies, eliteppldifrescaled, Gender, Age, Education,
                                        Employment, SES, leftright, average_trust, Religiosity, NCCmean, gdp)

#inclusionary strategy using Barron & Kenny's model:

#step one, total effect of x on y taking into account alternative explanations:
#summary(lm2)

#Step two: does X have a significant relationship with M (X->M)?
eliteppldif<- lm(formula=eliteppldifrescaled~v2x_libdemrescaled + Gender + Age+ Education+ Employment+ SES+ leftright+ average_trust+
                 Religiosity+NCCmean + gdp, data=nasdropped)

#Step three: how is the relationship between X&Y affected with M? What is the relationship between M and Y?
mediationmodel<- lm(average_polconspiracies~v2x_libdemrescaled + eliteppldifrescaled+ Gender + Age
                    + Education+ Employment+ SES+ leftright+ average_trust+
                      Religiosity+NCCmean + gdp, data=nasdropped)
#diagnostic plots. Relatively normal, slight tail skew but sample is large enough for it to be okay.
plot(eliteppldif)
```

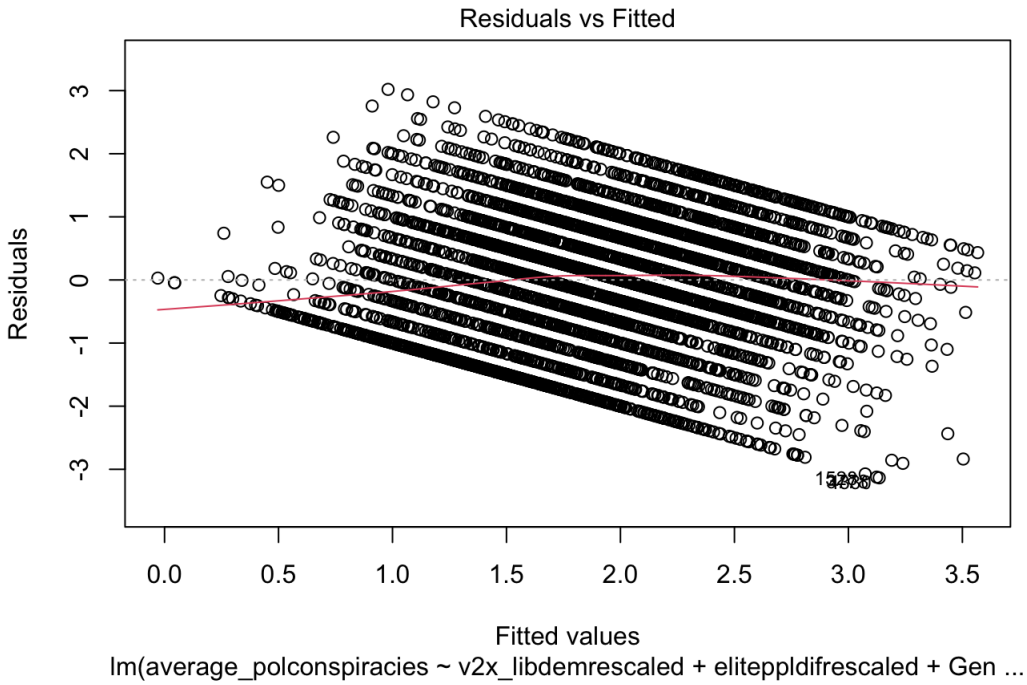

Residuals vs Fitted
Residuals
Fitted values
lm(eliteppldifrescaled ~ v2x_libdemrescaled + Gender + Age + Education + Em ...
4068
20744192

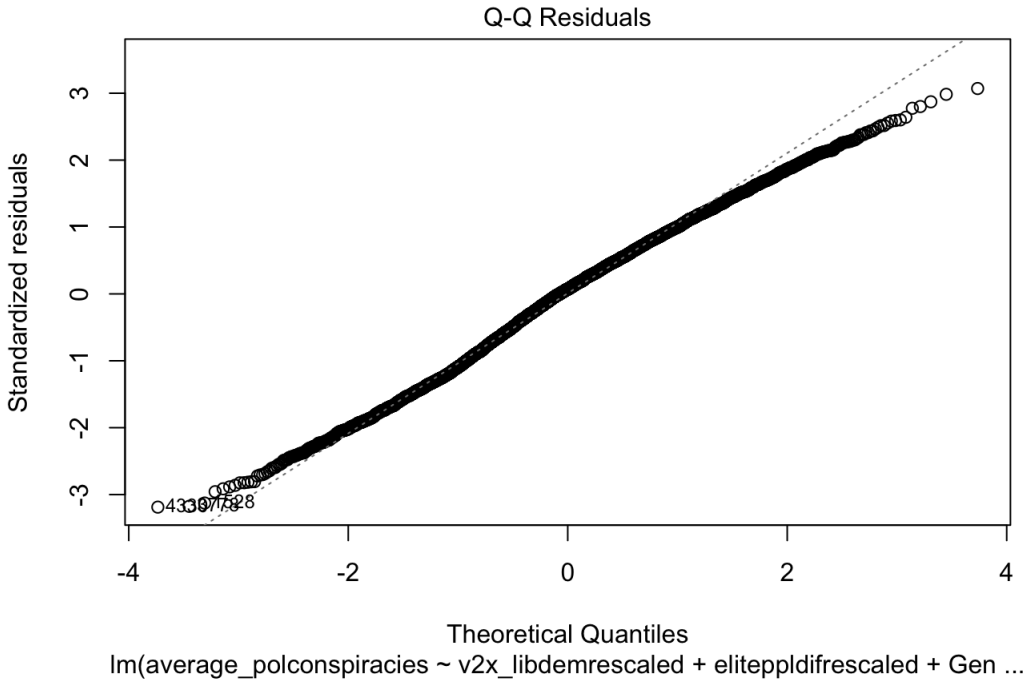

Q-Q Residuals
Standardized residuals
Theoretical Quantiles
lm(eliteppldifrescaled ~ v2x_libdemrescaled + Gender + Age + Education + Em ...
4068
20744192

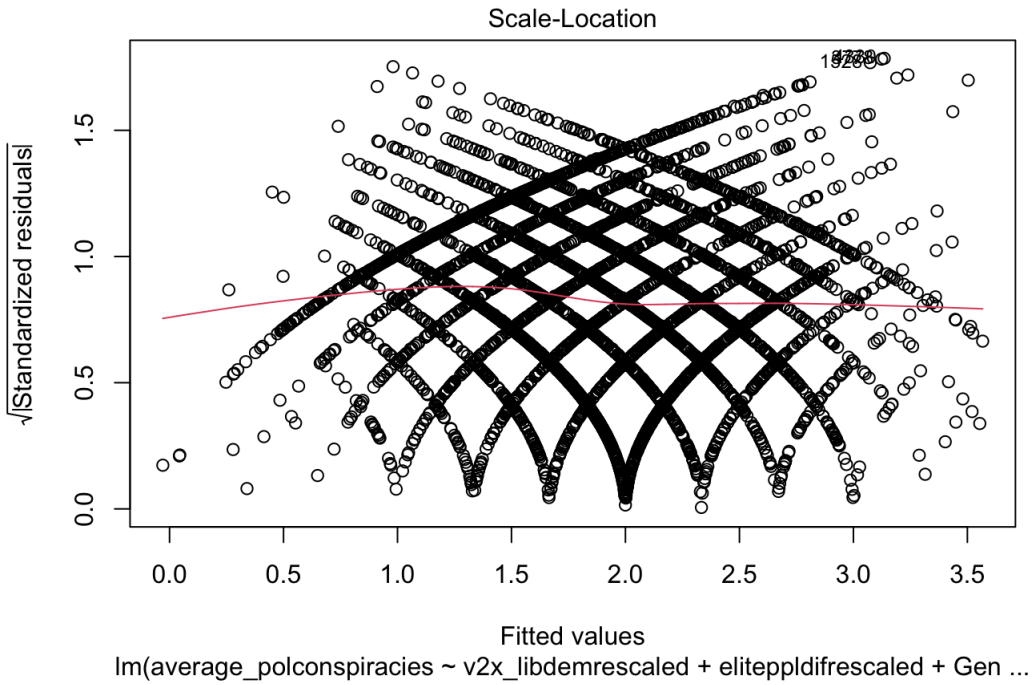


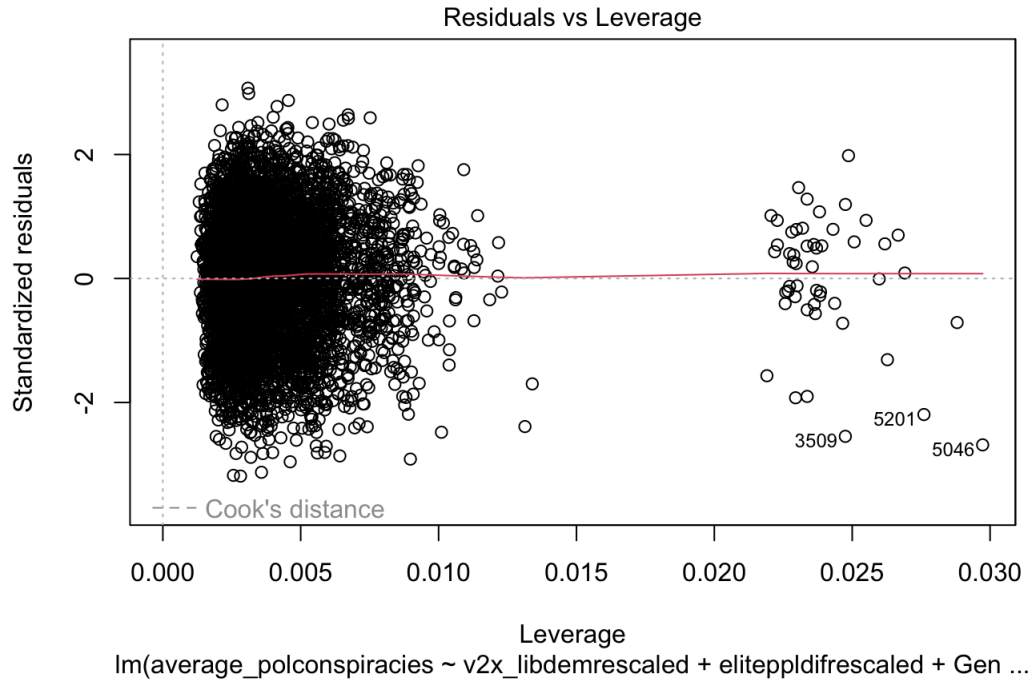



```
plot(mediationmodel)
```


Residuals vs Fitted
Residuals
Fitted values
lm(average_polconspiracies ~ v2x_libdemrescaled + eliteppldifrescaled + Gen ...


Q-Q Residuals
Standardized residuals
Theoretical Quantiles
lm(average_polconspiracies ~ v2x_libdemrescaled + eliteppldifrescaled + Gen ...






```
#table for inclusionary strategy:
inclusionarystrategytable<- tab_model(eliteppldif, mediationmodel, show.se=TRUE, show.p=TRUE, show.fstat = TRUE, show.obs=TRUE, collapse.ci=FALSE,
        string.est="Coefficients", string.pred = "Variables", string.p="P-value", string.se = "Std. Error", emph.p=TRUE,
        pred.labels = c("Intercept", "Quality of Democracy", "Male", "Age", "No Education", "Elementary Education", "Secondary Education",
                        "Post-Grad Degree", "Employed Part-Time", "Retired", "Unemployed", "Student", "Other Employment",
                        "Middle-Class", "Upper Class", "Left-Right Scale Placement", "Average Political Trust", "Religious", "NA Religion",
                        "Average Need For Cognitive Closure", "GDP", "External Political Efficacy"),
        dv.labels = c("External Political Efficacy", "Average Belief in Political Conspiracy Theories"),
        p.style="numeric_stars", CSS = list(css.thead = "text-align:center; padding-bottom:0.2cm;", css.tdata="padding:0.11cm;",
                                            css.depvarhead= "+padding-right: 0.2cm;", css.col5= "+padding-right: 0.88cm;", css.col1="padding-right: 0.1cm;"))

inclusionarystrategytable
```

	External Political Efficacy				**Average Belief in Political Conspiracy Theories**			
Variables	*Coefficients*	*Std. Error*	*CI*	*P-value*	*Coefficients*	*Std. Error*	*CI*	*P-value*
Intercept	3.21 ***	0.29	2.65 – 3.77	**<0.001**	4.40 ***	0.28	3.86 – 4.95	**<0.001**
Quality of Democracy	0.01 **	0.00	0.00 – 0.02	**0.003**	-0.04 ***	0.00	-0.05 – -0.03	**<0.001**
Male	-0.04	0.03	-0.10 – 0.02	0.173	0.05	0.03	-0.01 – 0.10	0.104
Age	-0.01 ***	0.00	-0.01 – -0.01	**<0.001**	-0.01 ***	0.00	-0.02 – -0.01	**<0.001**

No Education	0.49 **	0.15	0.19 – 0.78	**0.001**	0.17	0.15	-0.11 – 0.46	0.236
Elementary Education	0.20 ***	0.05	0.10 – 0.30	**<0.001**	0.18 ***	0.05	0.08 – 0.27	**<0.001**
Secondary Education	0.05	0.04	-0.02 – 0.12	0.132	0.09 **	0.03	0.02 – 0.16	**0.008**
Post-Grad Degree	-0.04	0.04	-0.12 – 0.04	0.359	0.02	0.04	-0.06 – 0.10	0.578
Employed Part-Time	-0.00	0.05	-0.09 – 0.08	0.916	-0.09 *	0.04	-0.18 – -0.01	**0.038**
Retired	0.05	0.05	-0.04 – 0.15	0.280	-0.24 ***	0.05	-0.34 – -0.14	**<0.001**
Unemployed	0.04	0.06	-0.08 – 0.16	0.501	-0.04	0.06	-0.15 – 0.07	0.483
Student	-0.09	0.08	-0.25 – 0.08	0.302	-0.05	0.08	-0.21 – 0.10	0.505
Other Employment	0.15 *	0.06	0.02 – 0.27	**0.018**	0.01	0.06	-0.11 – 0.13	0.881
Middle-Class	0.07 *	0.03	0.00 – 0.14	**0.041**	-0.11 **	0.03	-0.17 – -0.04	**0.001**
Upper Class	0.10	0.07	-0.04 – 0.24	0.148	0.09	0.07	-0.04 – 0.22	0.187
Left-Right Scale Placement	-0.02 ***	0.01	-0.04 – -0.01	**<0.001**	0.09 ***	0.01	0.08 – 0.10	**<0.001**
Average Political Trust	0.04 ***	0.01	0.03 – 0.05	**<0.001**	-0.07 ***	0.01	-0.08 – -0.06	**<0.001**
Religious	0.01	0.03	-0.05 – 0.07	0.821	0.18 ***	0.03	0.12 – 0.24	**<0.001**
NA Religion	0.09	0.06	-0.03 – 0.20	0.144	0.07	0.06	-0.04 – 0.18	0.221
Average Need For Cognitive Closure	-0.45 ***	0.02	-0.49 – -0.40	**<0.001**	0.19 ***	0.02	0.15 – 0.24	**<0.001**
GDP	-0.00	0.00	-0.00 – 0.00	0.288	0.00 ***	0.00	0.00 – 0.00	**<0.001**
External Political Efficacy					-0.14 ***	0.01	-0.17 – -0.11	**<0.001**
Observations	5328				5328			
R^2 / R^2 adjusted	0.116 / 0.112				0.231 / 0.228			

- *p<0.05 ** p<0.01 *** p<0.001*

```
#formal mediation test
library(mediation)
mediationanalysis<- mediate(eliteppldif, mediationmodel, treat="v2x_libdemrescaled", mediator="eliteppldifrescaled", boot=TRUE, sims=500)
summary(mediationanalysis)
```

```
##
## Causal Mediation Analysis
##
## Nonparametric Bootstrap Confidence Intervals with the Percentile Method
##
##               Estimate 95% CI Lower 95% CI Upper p-value
## ACME          -0.00179     -0.00304         0.00  <2e-16 ***
## ADE           -0.04048     -0.04895        -0.03  <2e-16 ***
## Total Effect  -0.04227     -0.05062        -0.03  <2e-16 ***
## Prop. Mediated  0.04227      0.01490         0.07  <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Sample Size Used: 5328
##
##
## Simulations: 500
```

```
#Although none of the variables affect the QOD coefficient, testing if NCC explains better.
#Step One- is quality of democracy related with NCC? It is not.
NCCmeanmediation<- lm(formula=NCCmean~v2x_libdemrescaled + Gender + Age+ Education+ Employment+ SES+ leftright+ average_trust+
                Religiosity+eliteppldifrescaled+gdp, data=nasdropped)
```

Reporting with Clustered Standard Errors, Does Not Change Estimates.

```
#robust clustered standard errors test.
library(sandwich)
library(lmtest)

clustered_se<- vcovCL(lm2, cluster = ~country_name)
coeftest(lm2, vcov = clustered_se)
```

```
##
## t test of coefficients:
##
##                                 Estimate    Std. Error t value  Pr(>|t|)
## (Intercept)                   3.9093693487  0.7839219389  4.9869 6.329e-07 ***
## v2x_libdemrescaled           -0.0417797400  0.0116774245 -3.5778 0.0003495 ***
## GenderMale                    0.0499166809  0.0355067944  1.4058 0.1598315
## Age                          -0.0119127856  0.0021685689 -5.4934 4.126e-08 ***
## EducationNone                 0.1022464527  0.1256234445  0.8139 0.4157316
## EducationElementary           0.1439489333  0.0443220772  3.2478 0.0011702 **
## EducationSecondary            0.0810970114  0.0490446756  1.6535 0.0982812 .
## EducationPostgrad             0.0288600661  0.0587387349  0.4913 0.6232137
## EmploymentPart-Time          -0.0898286666  0.0439815119 -2.0424 0.0411591 *
## EmploymentRetired            -0.2506043252  0.0679341051 -3.6889 0.0002274 ***
## EmploymentUnemployed         -0.0433390567  0.0219497653 -1.9745 0.0483803 *
## EmploymentStudent            -0.0398234787  0.0688003960 -0.5788 0.5627308
## EmploymentOther              -0.0133101583  0.0683454856 -0.1947 0.8455975
## SESMiddle-Class              -0.1169749840  0.0255725725 -4.5742 4.888e-06 ***
## SESUpper-Class                0.0745011650  0.1381777457  0.5392 0.5897927
## leftright                     0.0915011223  0.0165408622  5.5318 3.320e-08 ***
## average_trust                -0.0712812565  0.0141956319 -5.0214 5.298e-07 ***
## ReligiosityReligious          0.1776541276  0.0450495621  3.9435 8.132e-05 ***
## ReligiosityOther/Don't Know   0.0593615644  0.0902883382  0.6575 0.5109093
## NCCmean                       0.2598789540  0.0377067077  6.8921 6.133e-12 ***
## gdp                           0.0000089008  0.0000024993  3.5613 0.0003723 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
#doesn't change anything
```

EXTRA GRAPHS AND TABLES SECTION:

```
#Sociodemographic descriptive statistics tables:
sampletable<- regressiondata %>% tbl_summary(include=c(Education, SES, Employment, Age, Gender),
                                  statistic= list(all_continuous()~"{mean}", all_categorical()~"{p}%"),
                                  type = all_continuous() ~ "continuous", missing="no") %>% bold_labels() %>% bold_levels()
sampletable
```

Characteristic	N = 6,098[1]
Education	
University	37%
None	1.0%
Elementary	11%
Secondary	33%
Postgrad	18%
SES	
Lower-Class	26%
Middle-Class	69%
Upper-Class	5.7%
Employment	
Full-Time	56%
Part-Time	12%
Retired	15%
Unemployed	7.3%
Student	3.3%
Other	6.3%
Age	43
Gender	
Female	51%
Male	49%

[1] %; Mean

```
countrytable<- table<- regressiondata %>% tbl_summary(include=c(Education, SES, Employment, Age, Gender),
                                    statistic= list(all_continuous()~"{mean}", all_categorical()~"{p}%"),
                                    by=country_name, missing="no") %>% bold_labels() %>% bold_levels()
countrytable
```

Characteristic	Australia N = 1,026[1]	Brazil N = 1,024[1]	Canada N = 999[1]	Germany N = 1,027[1]	South Africa N = 1,016[1]	United States N = 1,006[1]
Education						
University	29%	77%	41%	41%	20%	19%
None	0%	0.2%	0.6%	0.4%	0.1%	4.6%
Elementary	25%	2.5%	3.2%	7.0%	0%	28%
Secondary	28%	3.5%	52%	41%	36%	33%
Postgrad	18%	17%	3.0%	10%	44%	15%
SES						
Lower-Class	24%	26%	24%	28%	21%	31%
Middle-Class	67%	67%	72%	69%	75%	61%
Upper-Class	8.6%	6.8%	3.7%	3.0%	4.2%	7.7%
Employment						
Full-Time	50%	73%	53%	48%	65%	46%
Part-Time	16%	6.1%	9.7%	19%	10%	12%
Retired	18%	7.3%	22%	20%	5.8%	18%
Unemployed	6.5%	7.1%	6.2%	3.4%	10%	11%
Student	1.6%	3.3%	2.4%	2.5%	7.2%	2.9%
Other	8.7%	3.5%	6.7%	6.4%	1.8%	10%
Age	44	39	47	47	37	44
Gender						
Female	49%	51%	51%	52%	49%	56%
Male	51%	49%	49%	48%	51%	44%

[1] %; Mean

```
#other control variables descriptive statistic tables:
sampletableothervariables<- regressiondata %>% tbl_summary(include=c(leftright, average_trust, Religiosity, NCCmean),
                        statistic= list(all_continuous()~c("{mean}", "{median}", "{p25}, {p75}"), all_categorical()~"{p}%"),
                        label = list(leftright~"Left-Right Scale", average_trust ~ "Average Political Trust", NCCmean ~ "Average Need for Cognitive Closure"),
                        type = all_continuous() ~ "continuous2", missing="no") %>% bold_labels() %>% bold_levels()

sampletableothervariables
```

Characteristic	N = 6,098[1]
Left-Right Scale	
Mean	5.4
Median	5.0
Q1, Q3	4.0, 7.0
Average Political Trust	
Mean	3.92
Median	4.00
Q1, Q3	1.50, 6.00
Religiosity	
Not Religious	42%
Religious	51%
Other/Don't Know	6.6%
Average Need for Cognitive Closure	
Mean	3.57
Median	3.53
Q1, Q3	3.13, 4.00

[1] %

```
countrytableothervariables<- regressiondata %>% tbl_summary(include=c(leftright, average_trust, Religiosity, NCCmean),
                                    statistic= list(all_continuous()~c("{mean}", "{median}", "{p25}, {p75}"), all_categorical()~"{p}%"),
                                    label = list(leftright~"Left-Right Scale", average_trust ~ "Average Political Trust", NCCmean ~ "Average Need for
Cognitive Closure"),
                                    by=country_name, type=all_continuous()~"continuous2", missing="no") %>% bold_labels() %>% bold_levels()

countrytableothervariables
```

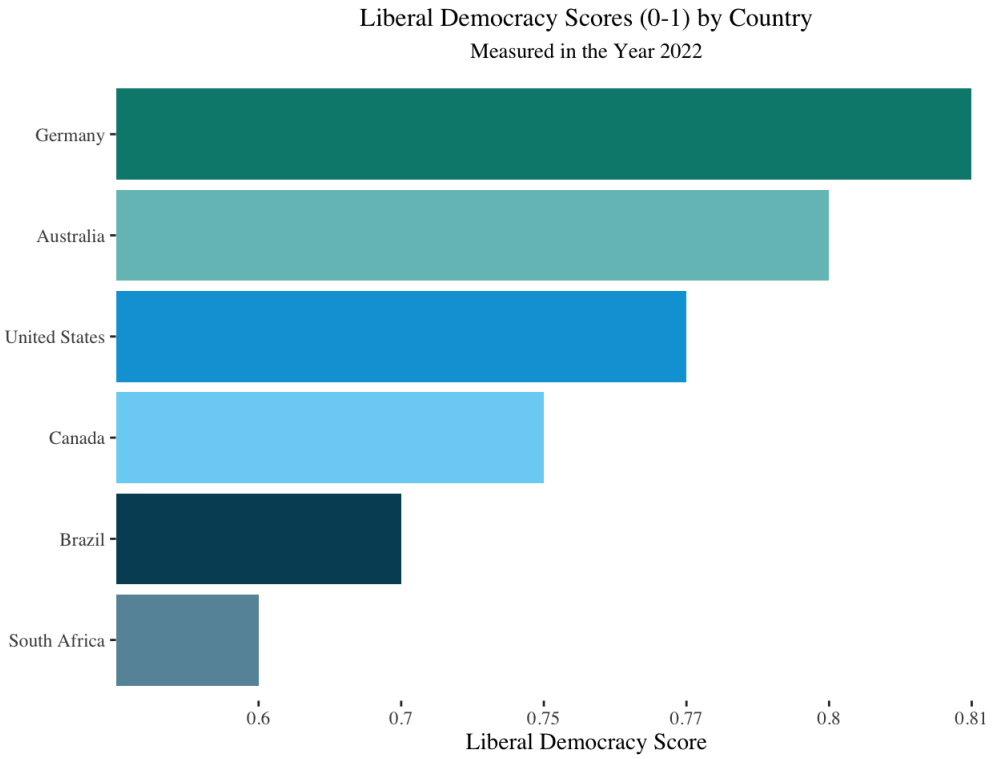
Characteristic	Australia N = 1,026[1]	Brazil N = 1,024[1]	Canada N = 999[1]	Germany N = 1,027[1]	South Africa N = 1,016[1]	United States N = 1,006[1]
Left-Right Scale						
Mean	5.4	5.7	5.3	4.9	5.8	5.6
Median	5.0	5.0	5.0	5.0	5.0	5.0
Q1, Q3	5.0, 7.0	4.0, 9.0	4.0, 7.0	4.0, 6.0	5.0, 7.0	4.0, 8.0
Average Political Trust						
Mean	4.88	3.32	4.66	3.91	2.45	4.29
Median	5.00	3.50	5.00	4.00	2.00	4.50
Q1, Q3	3.00, 7.00	1.00, 5.00	2.50, 6.50	1.50, 6.00	0.00, 4.00	2.00, 6.50
Religiosity						
Not Religious	58%	25%	53%	58%	20%	40%
Religious	34%	71%	38%	34%	76%	53%
Other/Don't Know	7.5%	4.3%	8.8%	7.9%	4.3%	7.1%
Average Need for Cognitive Closure						
Mean	3.50	3.75	3.52	3.50	3.67	3.51
Median	3.47	3.73	3.47	3.47	3.67	3.47
Q1, Q3	3.07, 3.87	3.33, 4.20	3.13, 3.93	3.13, 3.93	3.27, 4.07	3.07, 3.93

[1] %

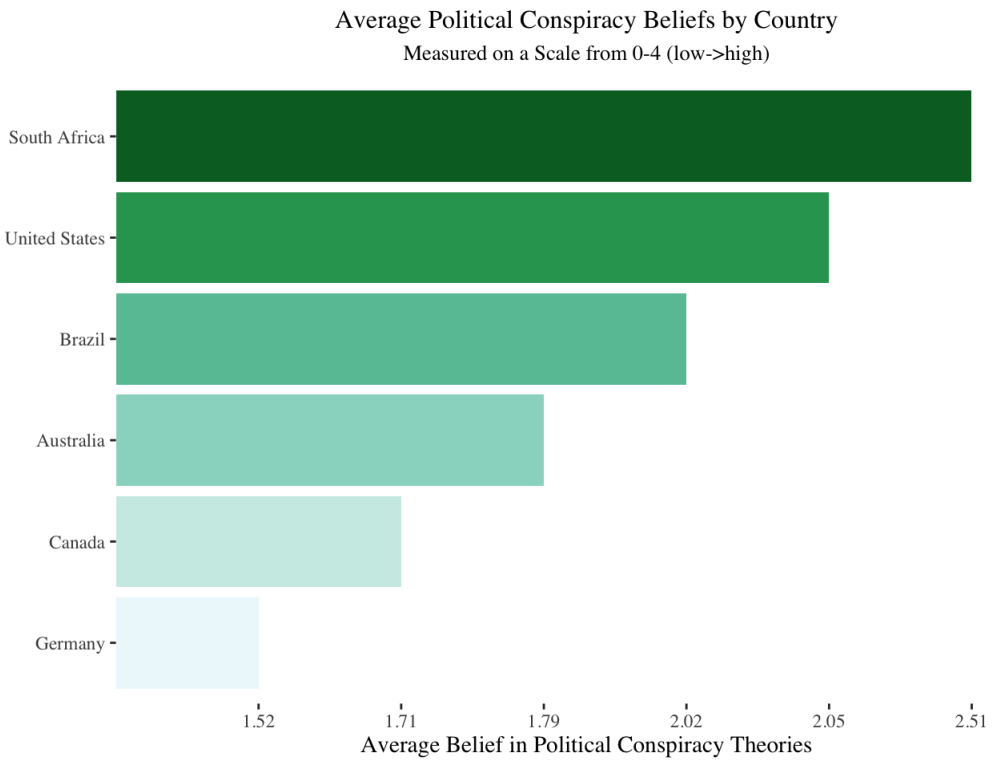
```
#table for dependent variable and mediating variable.
mainvariablestable<- regressiondata %>% tbl_summary(include=c(average_polconspiracies, eliteppldifrescaled),
                                                    statistic= list(all_continuous()~c("{mean}", "{median}", "{p25}, {p75}")),
                                                    label = list(average_polconspiracies~"Average Political Conspiracy Belief", eliteppldifrescaled~ "External Political Efficacy Score"),
                                                    by=country_name,
                                                    type = list(average_polconspiracies~"continuous2", eliteppldifrescaled ~ "continuous2"),
                                                    missing="no") %>% bold_labels() %>% bold_levels()

mainvariablestable
```

Characteristic	Australia N = 1,026	Brazil N = 1,024	Canada N = 999	Germany N = 1,027	South Africa N = 1,016	United States N = 1,006
Average Political Conspiracy Belief						
Mean	1.79	2.02	1.71	1.52	2.51	2.05
Median	2.00	2.00	2.00	1.67	2.67	2.00
Q1, Q3	1.00, 2.67	1.33, 2.67	0.67, 2.67	0.33, 2.33	2.00, 3.00	1.33, 3.00
External Political Efficacy Score						
Mean	2.45	2.11	2.38	2.38	2.03	2.34
Median	2.00	2.00	2.00	2.00	2.00	2.00
Q1, Q3	2.00, 3.00	1.00, 3.00	2.00, 3.00	1.00, 3.00	1.00, 3.00	1.00, 3.00

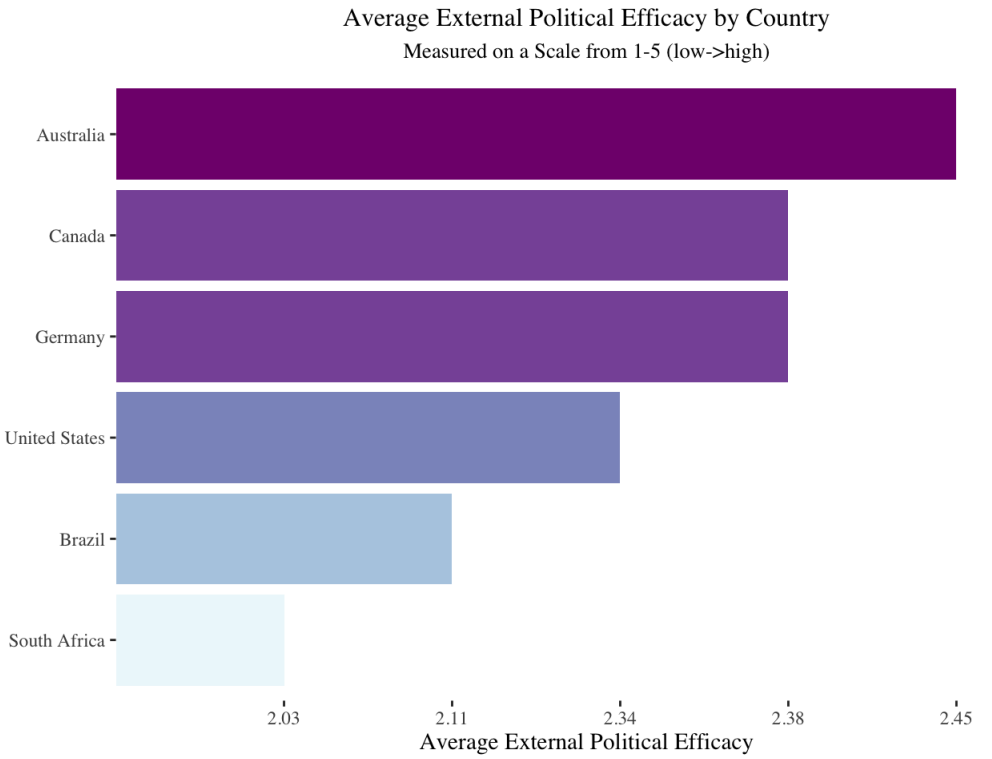
```
#plot for country democracy scores.
#first create data-set with only one value of democracy score per country.
distinct_data<- regressiondata %>% distinct(country_name, v2x_libdem, .keep_all = TRUE)


#quality of democracy graph.
library(ggthemes)
ggplot(distinct_data, aes(x = reorder(country_name, v2x_libdem), y = factor(round(v2x_libdem, 2)), fill = factor(round(v2x_libdem, 2)))) +
  geom_bar(stat = "identity") +
  ylab("Liberal Democracy Score") +
  labs(title="Liberal Democracy Scores (0-1) by Country", subtitle="Measured in the Year 2022") +
  coord_flip() +
  theme_tufte()+
  scale_fill_economist() +
  theme(legend.position = "none",  plot.title = element_text(hjust = 0.5, size = 12), plot.subtitle=element_text(hjust = 0.5, size = 10),axis.title.y = element_bl
ank())
```




```
#plots of dependent and mediating variable.
#create data-set that takes the average of average pol conspiracy beliefs/political efficacy scores for each country.
averages_by_country <- regressiondata %>%
  group_by(country_name) %>%
  summarise(
    average_polconspiraciescountry = mean(average_polconspiracies, na.rm = TRUE),
    avg_pol_efficacy = mean(eliteppldifrescaled, na.rm = TRUE))


#average political conspiracy belief graph.
ggplot(averages_by_country, aes(x = reorder(country_name, average_polconspiraciescountry), y = factor(round(average_polconspiraciescountry, 2)), fill =
factor(round(average_polconspiraciescountry, 2)))) +
  geom_bar(stat = "identity") +
  ylab("Average Belief in Political Conspiracy Theories") +
  labs(title="Average Political Conspiracy Beliefs by Country", subtitle="Measured on a Scale from 0-4 (low->high)")+
  coord_flip() +
  theme_tufte()+
  scale_fill_brewer(palette = "BuGn") +
  theme(legend.position = "none", plot.title = element_text(hjust = 0.5, size = 12), plot.subtitle=element_text(hjust = 0.5, size = 10), axis.title.y = element_bl
ank())
```




```
#average external political efficacy graph.
ggplot(averages_by_country, aes(x = reorder(country_name, avg_pol_efficacy), y = factor(round(avg_pol_efficacy, 2)), fill = factor(round(avg_pol_efficacy, 2)))) +
  geom_bar(stat = "identity") +
  ylab("Average External Political Efficacy") +
  labs(title="Average External Political Efficacy by Country", subtitle="Measured on a Scale from 1-5 (low->high)")+
  coord_flip() +
  theme_tufte()+
  scale_fill_brewer(palette = "BuPu") +
  theme(legend.position = "none", plot.title = element_text(hjust = 0.5, size = 12), plot.subtitle=element_text(hjust = 0.5, size = 10), axis.title.y = element_blank())
```



Final Model Visualization

```r
#visualizing final model
library(visreg)
visreg(mediationmodel, "v2x_libdemrescaled", # specifying x-variable to visualize
       ylab = "Average Political Conspiracy Belief (low->high)",
       xlab = "Quality of Democracy Score 0-100",
       gg = TRUE, # creating a ggplot
       band = TRUE) +
 theme(plot.title = element_text(hjust = 0.5, size = 12)) +
 ggtitle("Predicted Relationship Between Democratic Quality and Political Conspiracy Beliefs")
```