05 Summary Statistics

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Contents

Load and clean data

```r
# Load PSP data, created in tjbrailey_wrangle_data.Rmd.
psp <- rio::import(paste0(here::here(), "/data/tjbrailey_psp_clean.csv"))
psp <- psp[,-1]
psp_sub <- psp %>%
  dplyr::select(cown, year, dpi_auton, dpi_author,
                idc_subed, idc_subtax, idc_subpolice,
                polity4_polity_score)

# Regional Autonomy Index
rai <- rio::import(paste0(here::here(), "/data/RAI_country_scores_2015.xlsx")) %>%
  dplyr::select(country_name, year, n_RAI) %>%
  dplyr::mutate(cown = countrycode::countrycode(country_name, "country.name", "cown"),
                year = as.numeric(year)) %>%
  dplyr::select(cown, year, n_RAI)
```

```
## New names:
## * n_rep -> n_rep...11
## * n_lawmaking -> n_lawmaking...12
## * n_rep -> n_rep...21
## * n_lawmaking -> n_lawmaking...24
```

```
## Warning in countrycode::countrycode(country_name, "country.name", "cown"): Some values were not matc
```

```r
# Local Autonomy Index
lai <- rio::import(paste0(here::here(), "/data/LAI_data_v6_temp2.sav"))

# Ethnic Power Relations
epr <- rio::import(paste0(here::here(), "/data/EPR-2018.1.1.csv")) %>%
  dplyr::mutate(cown = countrycode::countrycode(gwid, "gwn", "cown")) %>%
  dplyr::select(cown, from, group, reg_aut) %>%
  dplyr::rename(year = from) %>%
```

```r
  dplyr::group_by(cown, group) %>%
  tidyr::complete(cown, group,
                  year = 1946:2017,
                  fill = list(incidents = 0))
```

```
## Warning in countrycode::countrycode(gwid, "gwn", "cown"): Some values were not matched unambiguously
```

```r
epr_wide <- epr %>%
  tidyr::pivot_wider(names_from = group,
                     values_from = reg_aut) %>%
  dplyr::group_by(cown)
epr_wide <- epr_wide %>%
  tidyr::fill_(names(epr_wide[,2:642])) %>%
  dplyr::ungroup()
epr_wide$reg_aut_cont <- rowSums(epr_wide[,3:642] == TRUE, na.rm = TRUE)
epr_final <- epr_wide %>%
  dplyr::mutate(reg_aut_dum = ifelse(reg_aut_cont >= 1, 1, 0)) %>%
  dplyr::select(cown, year, reg_aut_dum, reg_aut_cont)
```

Join datasets

```r
join1 <- dplyr::left_join(psp_sub, rai, by = c("cown", "year"))
join2 <- dplyr::left_join(join1, epr_final, by = c("cown", "year"))

join2[join2 == -999 |
        join2 == -77 |
        join2 == -44] <- NA

reg_data <- join2 %>%
  dplyr::mutate(dpi_auton = as.logical(dpi_auton),
                dpi_author = as.logical(dpi_author),
                reg_aut_dum = as.logical(reg_aut_dum))
reg_data_complete <- reg_data[complete.cases(reg_data), ] %>%
  dplyr::select(cown, year,
                dpi_auton, n_RAI, reg_aut_dum,
                idc_subtax, idc_subed, idc_subpolice,
                dpi_author, polity4_polity_score
                )
```

Plot correlation tables

```r
auton_cor_pear <- xtable::xtable(round(cor(reg_data_complete[, 3:9]
                                           ), 2)
                                 )
upper <- auton_cor_pear
upper[upper.tri(auton_cor_pear)] <- ""
upper <- as.data.frame(upper)
upper <- xtable::xtable(upper)
upper
```

```
## % latex table generated in R 3.6.2 by xtable 1.8-4 package
## % Thu Mar 12 00:55:43 2020
```

```
## \begin{table}[ht]
## \centering
## \begin{tabular}{rrlllll}
##   \hline
##  & dpi\_auton & n\_RAI & reg\_aut\_dum & idc\_subtax & idc\_subed & idc\_subpolice & dpi\_author \\
##   \hline
## dpi\_auton & 1.00 &  &  &  &  &  \\
##   n\_RAI & 0.24 & 1 &  &  &  &  \\
##   reg\_aut\_dum & 0.32 & 0.41 & 1 &  &  &  \\
##   idc\_subtax & 0.20 & 0.86 & 0.46 & 1 &  &  \\
##   idc\_subed & 0.15 & 0.7 & 0.35 & 0.78 & 1 &  \\
##   idc\_subpolice & -0.05 & 0.83 & 0.35 & 0.76 & 0.65 & 1 &  \\
##   dpi\_author & 0.18 & 0.79 & 0.38 & 0.77 & 0.65 & 0.81 & 1 \\
##    \hline
## \end{tabular}
## \end{table}
```

```r
auton_cor_spear <- xtable::xtable(round(cor(reg_data_complete[, 3:9],
                                            method = "spearman"
                                            ), 2)
                                  )
auton_cor_spear
```

```
## % latex table generated in R 3.6.2 by xtable 1.8-4 package
## % Thu Mar 12 00:55:43 2020
## \begin{table}[ht]
## \centering
## \begin{tabular}{rrrrrrrr}
##   \hline
##  & dpi\_auton & n\_RAI & reg\_aut\_dum & idc\_subtax & idc\_subed & idc\_subpolice & dpi\_author \\
##   \hline
## dpi\_auton & 1.00 & 0.25 & 0.32 & 0.20 & 0.15 & -0.05 & 0.18 \\
##   n\_RAI & 0.25 & 1.00 & 0.40 & 0.84 & 0.72 & 0.83 & 0.79 \\
##   reg\_aut\_dum & 0.32 & 0.40 & 1.00 & 0.46 & 0.35 & 0.35 & 0.38 \\
##   idc\_subtax & 0.20 & 0.84 & 0.46 & 1.00 & 0.78 & 0.76 & 0.77 \\
##   idc\_subed & 0.15 & 0.72 & 0.35 & 0.78 & 1.00 & 0.65 & 0.65 \\
##   idc\_subpolice & -0.05 & 0.83 & 0.35 & 0.76 & 0.65 & 1.00 & 0.81 \\
##   dpi\_author & 0.18 & 0.79 & 0.38 & 0.77 & 0.65 & 0.81 & 1.00 \\
##    \hline
## \end{tabular}
## \end{table}
```

```r
auton_cor_ken <- xtable::xtable(round(cor(reg_data_complete[, 3:9],
                                          method = "kendall"
                                          ), 2)
                                )
auton_cor_ken
```

```
## % latex table generated in R 3.6.2 by xtable 1.8-4 package
## % Thu Mar 12 00:55:43 2020
## \begin{table}[ht]
## \centering
## \begin{tabular}{rrrrrrrr}
##   \hline
##  & dpi\_auton & n\_RAI & reg\_aut\_dum & idc\_subtax & idc\_subed & idc\_subpolice & dpi\_author \\
```

```
##    \hline
## dpi\_auton & 1.00 & 0.21 & 0.32 & 0.20 & 0.15 & -0.05 & 0.18 \\
##   n\_RAI & 0.21 & 1.00 & 0.33 & 0.70 & 0.60 & 0.68 & 0.65 \\
##   reg\_aut\_dum & 0.32 & 0.33 & 1.00 & 0.46 & 0.35 & 0.35 & 0.38 \\
##   idc\_subtax & 0.20 & 0.70 & 0.46 & 1.00 & 0.78 & 0.76 & 0.77 \\
##   idc\_subed & 0.15 & 0.60 & 0.35 & 0.78 & 1.00 & 0.65 & 0.65 \\
##   idc\_subpolice & -0.05 & 0.68 & 0.35 & 0.76 & 0.65 & 1.00 & 0.81 \\
##   dpi\_author & 0.18 & 0.65 & 0.38 & 0.77 & 0.65 & 0.81 & 1.00 \\
##    \hline
## \end{tabular}
## \end{table}
```

Regressions

```
reg1 <- lm(polity4_polity_score ~ dpi_auton, data = reg_data_complete)
reg1_tex <- texreg::texreg(reg1, include.ci = FALSE)
reg1_tex
```

```
##
## \begin{table}
## \begin{center}
## \begin{tabular}{l c}
## \hline
##  & Model 1 \\
## \hline
## (Intercept)    & $6.65^{***}$ \\
##                & $(0.16)$      \\
## dpi\_autonTRUE & $2.79^{***}$ \\
##                & $(0.38)$      \\
## \hline
## R$^2$          & $0.06$        \\
## Adj. R$^2$     & $0.05$        \\
## Num. obs.      & $922$         \\
## \hline
## \multicolumn{2}{l}{\scriptsize{$^{***}p<0.001$; $^{**}p<0.01$; $^{*}p<0.05$}}
## \end{tabular}
## \caption{Statistical models}
## \label{table:coefficients}
## \end{center}
## \end{table}
```
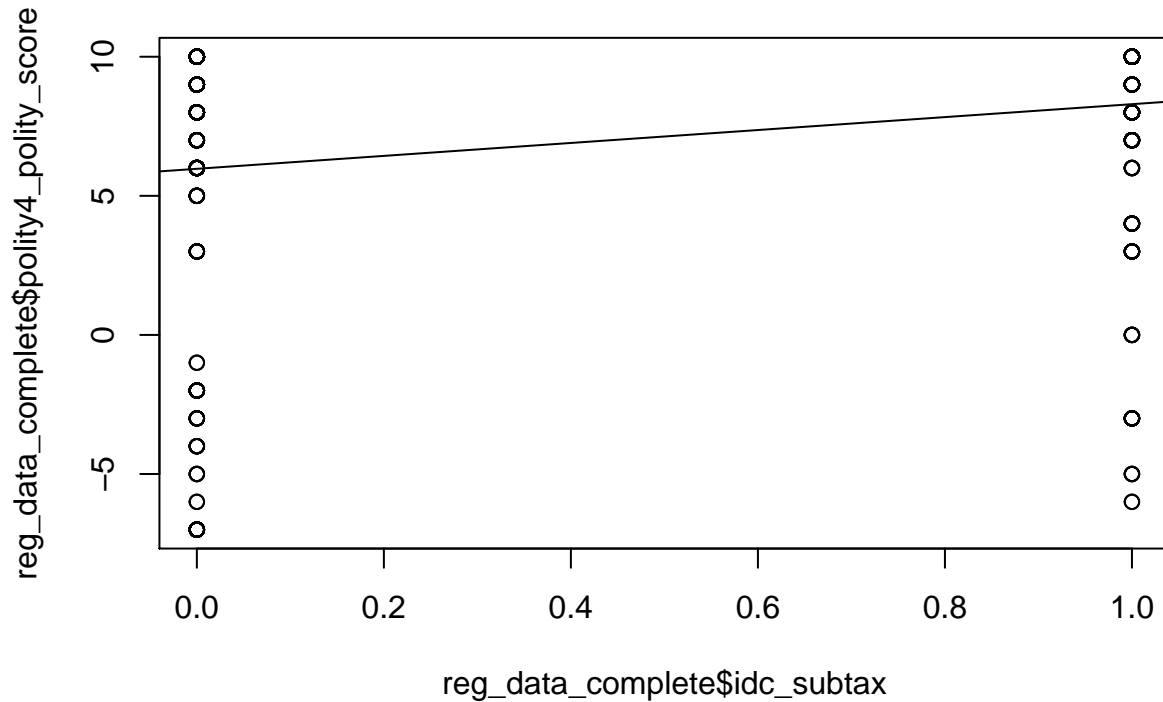
```
plot(x = reg_data_complete$dpi_auton, y = reg_data_complete$polity4_polity_score)
abline(reg = reg1)
```
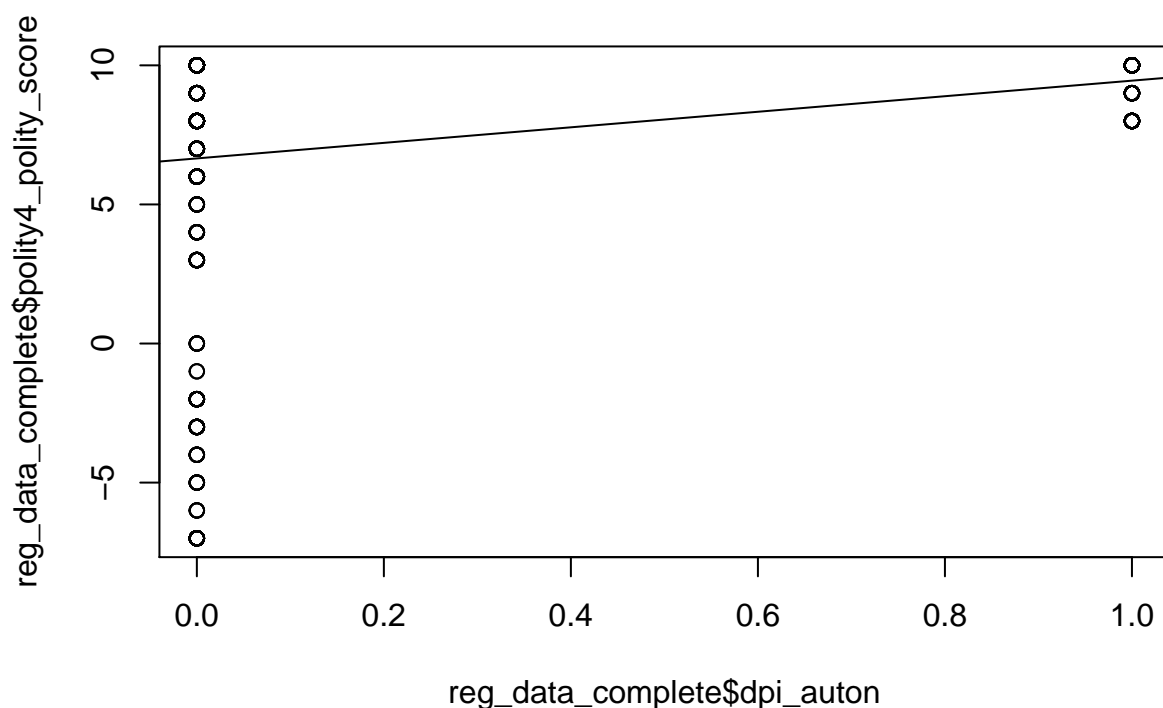
```
reg2 <- lm(polity4_polity_score ~ idc_subtax, data = reg_data_complete)
reg2_tex <- texreg::texreg(reg2, include.ci = FALSE)
reg2_tex
```

```
##
## \begin{table}
## \begin{center}
## \begin{tabular}{l c}
## \hline
##  & Model 1 \\
## \hline
## (Intercept) & $5.97^{***}$ \\
##             & $(0.21)$     \\
## idc\_subtax & $2.32^{***}$ \\
##             & $(0.29)$     \\
## \hline
## R$^2$       & $0.06$       \\
## Adj. R$^2$  & $0.06$       \\
## Num. obs.   & $922$        \\
## \hline
## \multicolumn{2}{l}{\scriptsize{$^{***}$p<0.001$; $^{**}$p<0.01$; $^{*}$p<0.05$}}
## \end{tabular}
## \caption{Statistical models}
## \label{table:coefficients}
## \end{center}
## \end{table}
```

```
plot(x = reg_data_complete$idc_subtax, y = reg_data_complete$polity4_polity_score)
abline(reg = reg2)
```
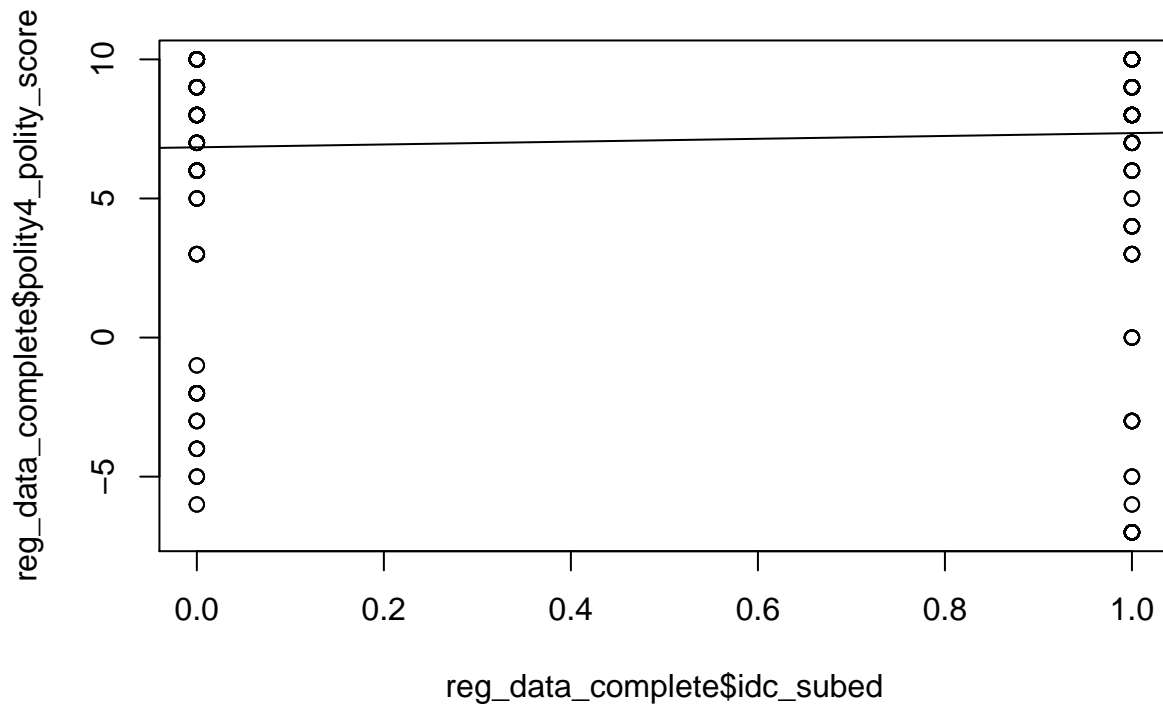


```
reg3 <- lm(polity4_polity_score ~ idc_subed, data = reg_data_complete)
reg3_tex <- texreg::texreg(reg3, include.ci = FALSE)
reg3_tex
```

```
##
## \begin{table}
## \begin{center}
## \begin{tabular}{l c}
## \hline
##  & Model 1 \\
## \hline
## (Intercept) & $6.84^{***}$ \\
##             & $(0.25)$      \\
## idc\_subed  & $0.51$        \\
##             & $(0.31)$      \\
## \hline
## R$^2$       & $0.00$        \\
## Adj. R$^2$  & $0.00$        \\
## Num. obs.   & $922$         \\
## \hline
## \multicolumn{2}{l}{\scriptsize{$^{***}p<0.001$; $^{**}p<0.01$; $^{*}p<0.05$}}
## \end{tabular}
## \caption{Statistical models}
```

```
## \label{table:coefficients}
## \end{center}
## \end{table}
```

```
plot(x = reg_data_complete$idc_subed, y = reg_data_complete$polity4_polity_score)
abline(reg = reg3)
```
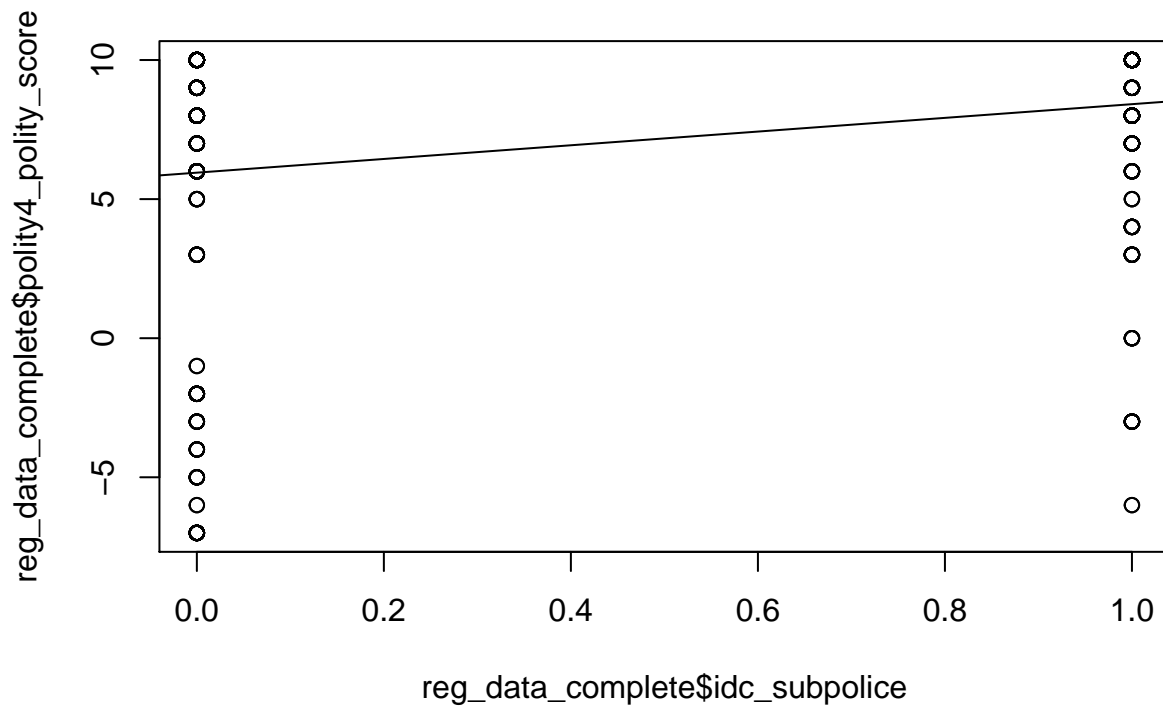


```
reg4 <- lm(polity4_polity_score ~ idc_subpolice, data = reg_data_complete)
reg4_tex <- texreg::texreg(reg4, include.ci = FALSE)
reg4_tex
```

```
##
## \begin{table}
## \begin{center}
## \begin{tabular}{l c}
## \hline
##  & Model 1 \\
## \hline
## (Intercept)    & $5.95^{***}$ \\
##                & $(0.20)$      \\
## idc\_subpolice & $2.46^{***}$ \\
##                & $(0.29)$      \\
## \hline
## R$^2$          & $0.07$        \\
## Adj. R$^2$     & $0.07$        \\
## Num. obs.      & $922$         \\
## \hline
```

```
## \multicolumn{2}{l}{\scriptsize{$^{***}p<0.001$; $^{**}p<0.01$; $^{*}p<0.05$}}
## \end{tabular}
## \caption{Statistical models}
## \label{table:coefficients}
## \end{center}
## \end{table}
```

```r
plot(x = reg_data_complete$idc_subpolice, y = reg_data_complete$polity4_polity_score)
abline(reg = reg4)
```



```r
reg5 <- lm(polity4_polity_score ~ n_RAI, data = reg_data_complete)
reg5_tex <- texreg::texreg(reg5, include.ci = FALSE)
reg5_tex
```

```
##
## \begin{table}
## \begin{center}
## \begin{tabular}{l c}
## \hline
##  & Model 1 \\
## \hline
## (Intercept) & $5.31^{***}$ \\
##             & $(0.22)$      \\
## n\_RAI      & $0.13^{***}$ \\
##             & $(0.01)$      \\
## \hline
## R$^2$        & $0.11$        \\
```

```
## Adj. R$^2$   & $0.11$          \\
## Num. obs.    & $922$            \\
## \hline
## \multicolumn{2}{l}{\scriptsize{$^{***}p<0.001$; $^{**}p<0.01$; $^{*}p<0.05$}}
## \end{tabular}
## \caption{Statistical models}
## \label{table:coefficients}
## \end{center}
## \end{table}
```

```r
jpeg(filename = paste0(here::here(), "/vis/polity_score_rai_reg.jpeg"))
plot(x = reg_data_complete$n_RAI,
     y = reg_data_complete$polity4_polity_score,
     xlab = "RAI Measure of Autonomy",
     ylab = "Polity Score",
     main = "Predicting Polity Score with Regional Autonomy Provisions")
abline(reg = reg5, col = "red")
dev.off()
```

```
## pdf
##   2
```

```r
reg6 <- lm(polity4_polity_score ~ reg_aut_dum, data = reg_data_complete)
reg6_tex <- texreg::texreg(reg6, include.ci = FALSE)
reg6_tex
```

```
##
## \begin{table}
## \begin{center}
## \begin{tabular}{l c}
## \hline
##  & Model 1 \\
## \hline
## (Intercept)       & $6.42^{***}$ \\
##                   & $(0.18)$        \\
## reg\_aut\_dumTRUE & $2.12^{***}$ \\
##                   & $(0.31)$        \\
## \hline
## R$^2$             & $0.05$          \\
## Adj. R$^2$        & $0.05$          \\
## Num. obs.         & $922$           \\
## \hline
## \multicolumn{2}{l}{\scriptsize{$^{***}p<0.001$; $^{**}p<0.01$; $^{*}p<0.05$}}
## \end{tabular}
## \caption{Statistical models}
## \label{table:coefficients}
## \end{center}
## \end{table}
```

```r
plot(x = reg_data_complete$reg_aut_dum, y = reg_data_complete$polity4_polity_score)
abline(reg = reg6)
```
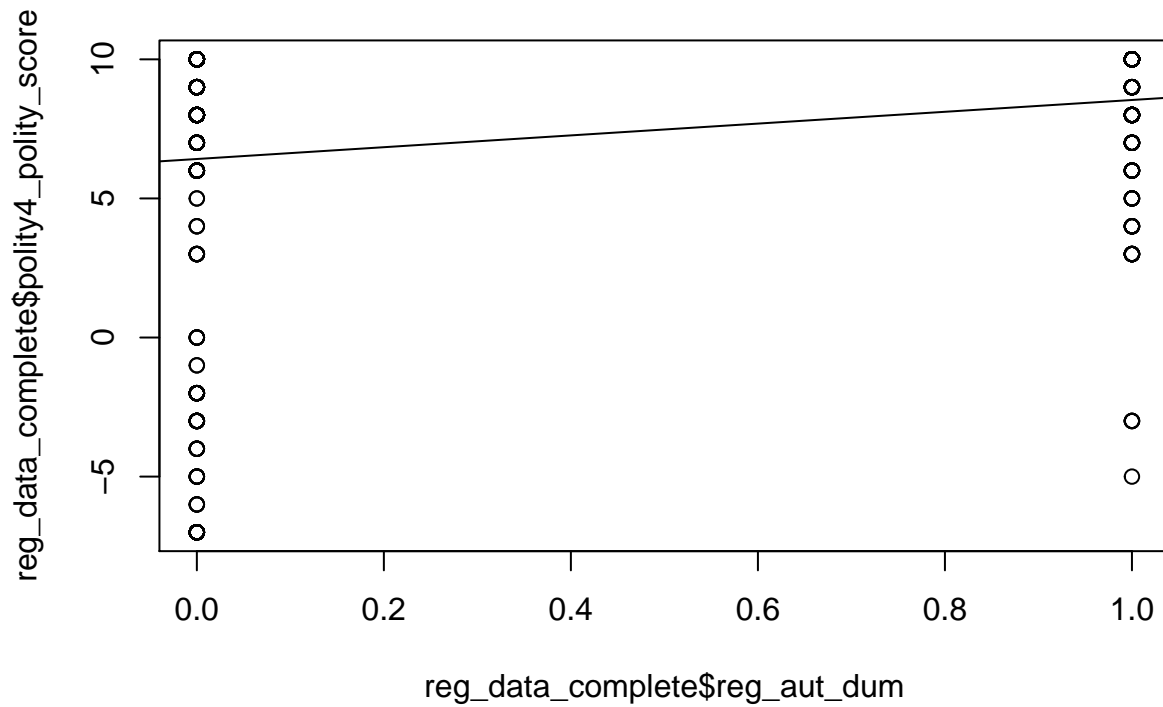
```r
reg_full_tex <- texreg::texreg(list(reg1, reg5, reg6),
                               mfrow = TRUE,
                               omit.coef = "as.factor",
                               include.ci = FALSE)

reg_full_tex
```

```
##
## \begin{table}
## \begin{center}
## \begin{tabular}{l c c c}
## \hline
##  & Model 1 & Model 2 & Model 3 \\
## \hline
## (Intercept)      & $6.65^{***}$ & $5.31^{***}$ & $6.42^{***}$ \\
##                  & $(0.16)$     & $(0.22)$     & $(0.18)$        \\
## dpi\_autonTRUE    & $2.79^{***}$ &              &                 \\
##                  & $(0.38)$     &              &                 \\
## n\_RAI           &              & $0.13^{***}$ &                 \\
##                  &              & $(0.01)$     &                 \\
## reg\_aut\_dumTRUE &              &              & $2.12^{***}$ \\
##                  &              &              & $(0.31)$        \\
## \hline
## R$^2$            & $0.06$       & $0.11$       & $0.05$          \\
## Adj. R$^2$       & $0.05$       & $0.11$       & $0.05$          \\
## Num. obs.        & $922$        & $922$        & $922$           \\
```

```
## \hline
## \multicolumn{4}{l}{\scriptsize{$^{***}p<0.001$; $^{**}p<0.01$; $^{*}p<0.05$}}
## \end{tabular}
## \caption{Statistical models}
## \label{table:coefficients}
## \end{center}
## \end{table}
```