ISQ Replication Figures and Summary Statistics

2024-11-14

Replication file for the article "Exit Clauses in International Investment Agreements" by Tuuli-Anna Huikuri and Sujeong Shim

```
install.packages("pacman")
```

```
##
## The downloaded binary packages are in
##  /var/folders/8z/kxxy9pxj4xd6gxwbgkryfpjj3ybqqs/T//RtmpzldgF7/downloaded_packages
```

```
pacman::p_load(haven, foreign, tidyverse, ggplot2, ggthemes, interplot, stargazer)
```

```
iias <- read_dta("/Users/huikuri/Dropbox/Tuuli and Sujeong projects/Submission/ISQ/Accepted/Replication/
meltframe1 <- read.csv("/Users/huikuri/Dropbox/Tuuli and Sujeong projects/Submission/ISQ/Accepted/Replic
bleu <- read.csv("/Users/huikuri/Dropbox/Tuuli and Sujeong projects/Submission/ISQ/Accepted/Replication/
```

Figure 1. Variation in the flexibility of exit clauses in BITs. 1959-2018

```
# Reorder levels
meltframe1$variable <- factor(meltframe1$variable,
                              levels = c("anytimeafter_clauses", "termwindow_clauses", "anytime_clauses

fig1 <- ggplot(data = meltframe1, aes(x = year, y = value, group = variable,
                                      shape = variable, fill = variable)) +
  geom_density(data = subset(meltframe1, variable %in% c("anytimeafter_clauses", "termwindow_clauses",
               aes(x = year, y = value, fill = variable),
               stat = "identity",
               alpha = 0.8, color = "black") +
  theme_clean() +
  theme(plot.title = element_text(hjust = 0.5, size = 18),
        axis.title = element_text(size = 16)) +
  theme(strip.text.x = element_blank()) +
  scale_fill_manual(values = c("brown1", "tomato4", "navajowhite2"),
                    labels = c("Anytime after initial", "Termination window", "Anytime"),
                    name = "Exit clause") +
  ggtitle("Exit clauses in BITs, 1959-2018") +
  labs(y = "Number of BITs signed", x = "Year")
fig1
```

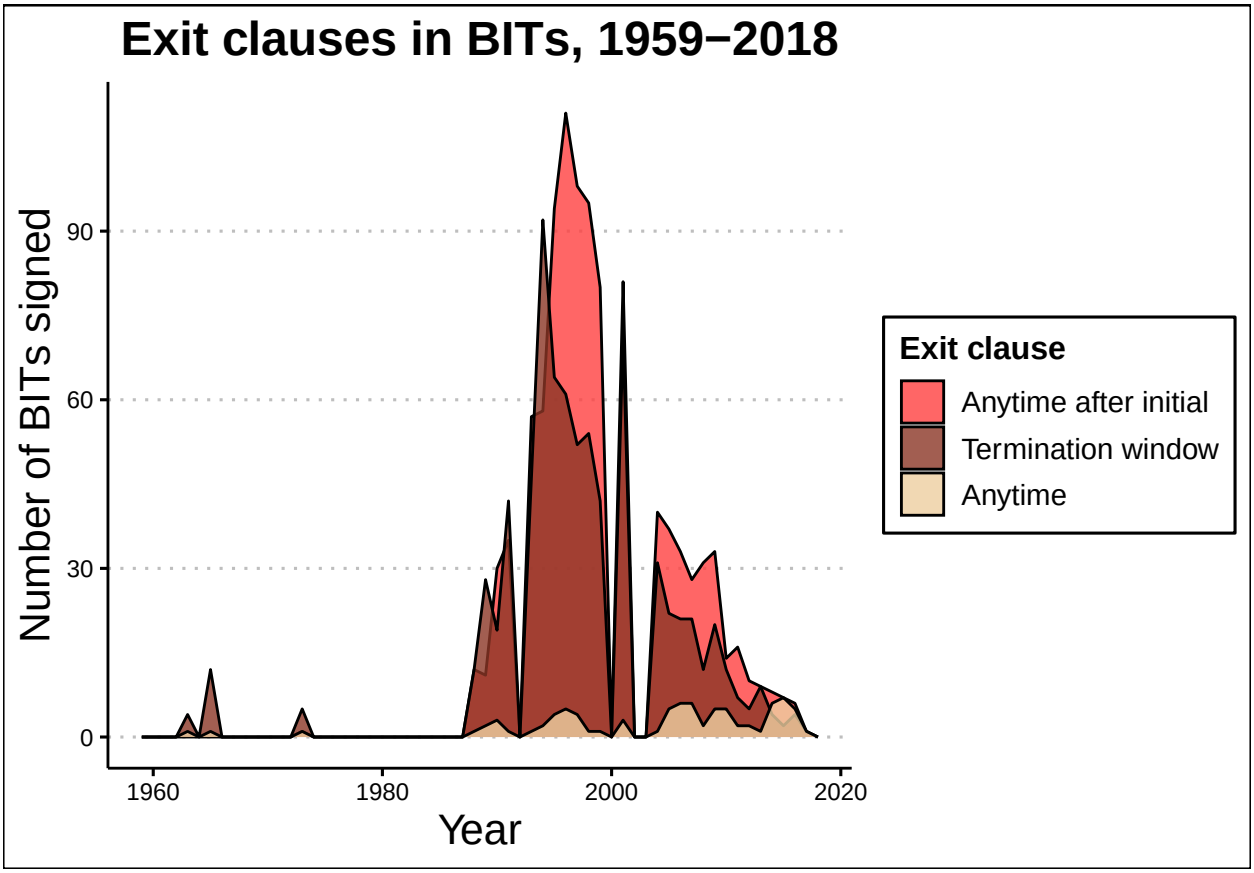


Figure 2. Deviations of effective commitment period from the BLEU model BIT

```
fig2 <- ggplot(bleu, aes(x=deviation)) +
  geom_bar(width = 0.5, fill = "lightgrey", color = "black", position = "dodge2") +
  geom_text(stat = "count", aes(label = stat(count), y = ..count..), vjust = -0.4, size = 4) +
  labs(title = "Deviations of effective commitment period from BLEU model BIT", x = "Commitment period
  scale_y_continuous("Count of BITs") +
  scale_x_continuous(breaks = seq(-10, 31, 5)) +
  theme_clean() +
  theme(plot.title = element_text(hjust = 0.5))
fig2
```

```
## Warning: The dot-dot notation (‘..count..‘) was deprecated in ggplot2 3.4.0.
## i Please use ‘after_stat(count)‘ instead.
## This warning is displayed once every 8 hours.
## Call ‘lifecycle::last_lifecycle_warnings()‘ to see where this warning was
## generated.
```

```
## Warning: ‘stat(count)‘ was deprecated in ggplot2 3.4.0.
## i Please use ‘after_stat(count)‘ instead.
## This warning is displayed once every 8 hours.
## Call ‘lifecycle::last_lifecycle_warnings()‘ to see where this warning was
## generated.
```

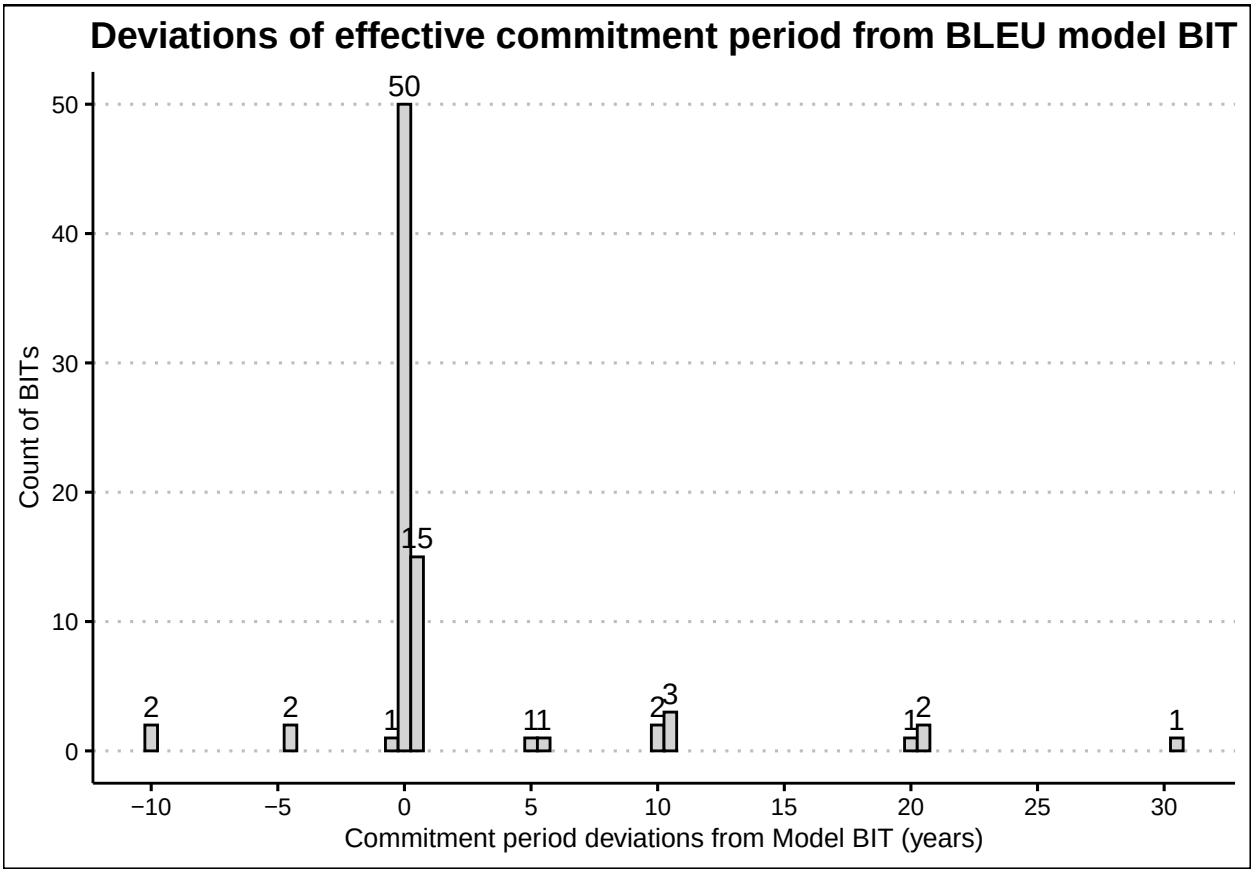


Figure 3. Effective commitment period in BITs

```
effective <- iias$effective_commitment_years
fig3 <- ggplot(data=NULL, aes(x=effective)) +
  geom_histogram(alpha=0.8, position="identity", color = "black", fill = "grey") +
  labs(x="Effective commitment years", y = "Frequency",
       title = "Effective commitment years in BITs") +
  theme_clean() +
  theme(plot.title = element_text(hjust = 0.5))
fig3
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

```
## Warning: Removed 13 rows containing non-finite outside the scale range
## (`stat_bin()`).
```

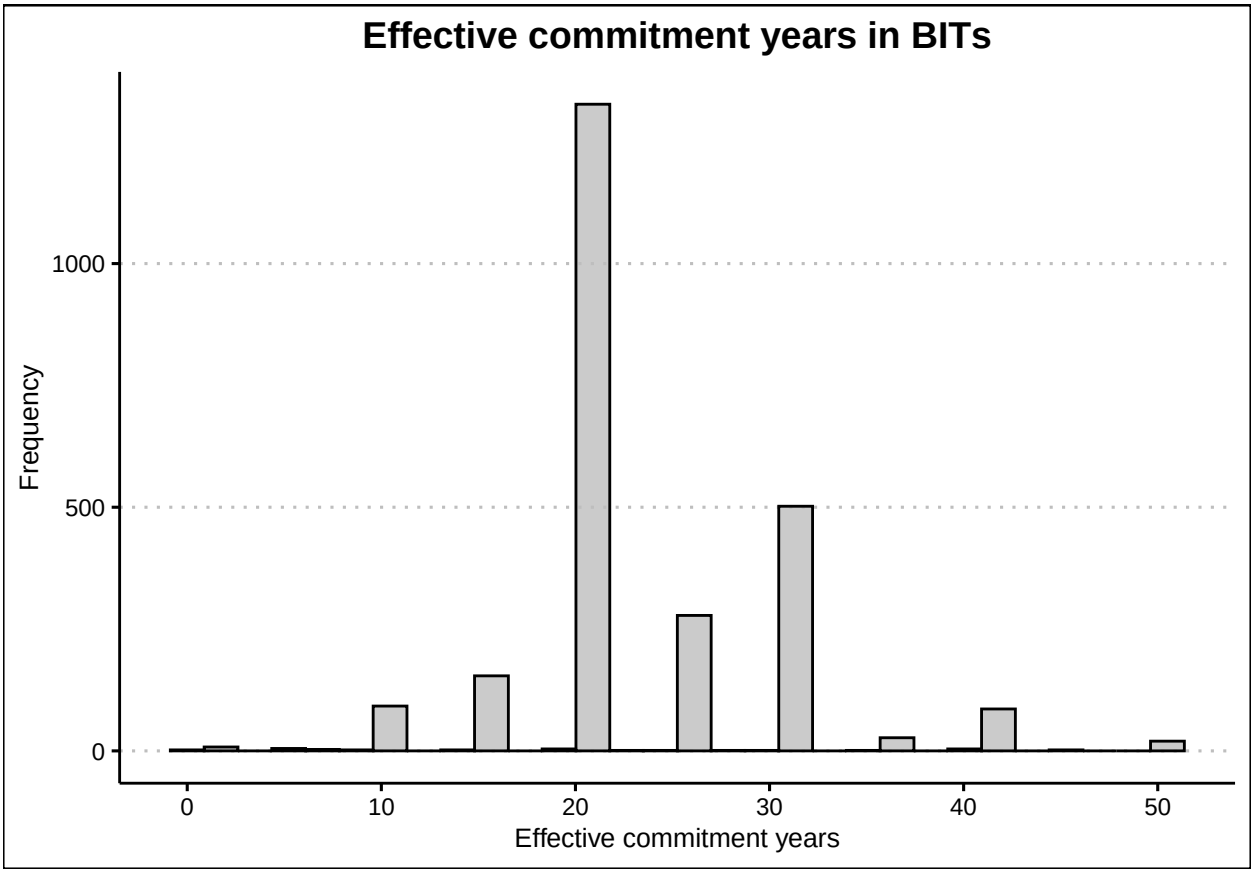


Figure 4. Marginal effect of importer's PR protection on effective commitment period

```
table3_model3 <- lm(effective_commitment_years ~ dem_accountability1 + dem_accountability1*prights_vdem

fig4 <- interplot(m = table3_model3, var1 = "prights_vdem2", var2 = "dem_accountability1", hist = T) +
  labs(title = "Marginal effect of importers's property rights on commitment period", x = "Exporters's
  theme_clean() +
  theme(plot.title = element_text(hjust = 0.5))
fig4
```

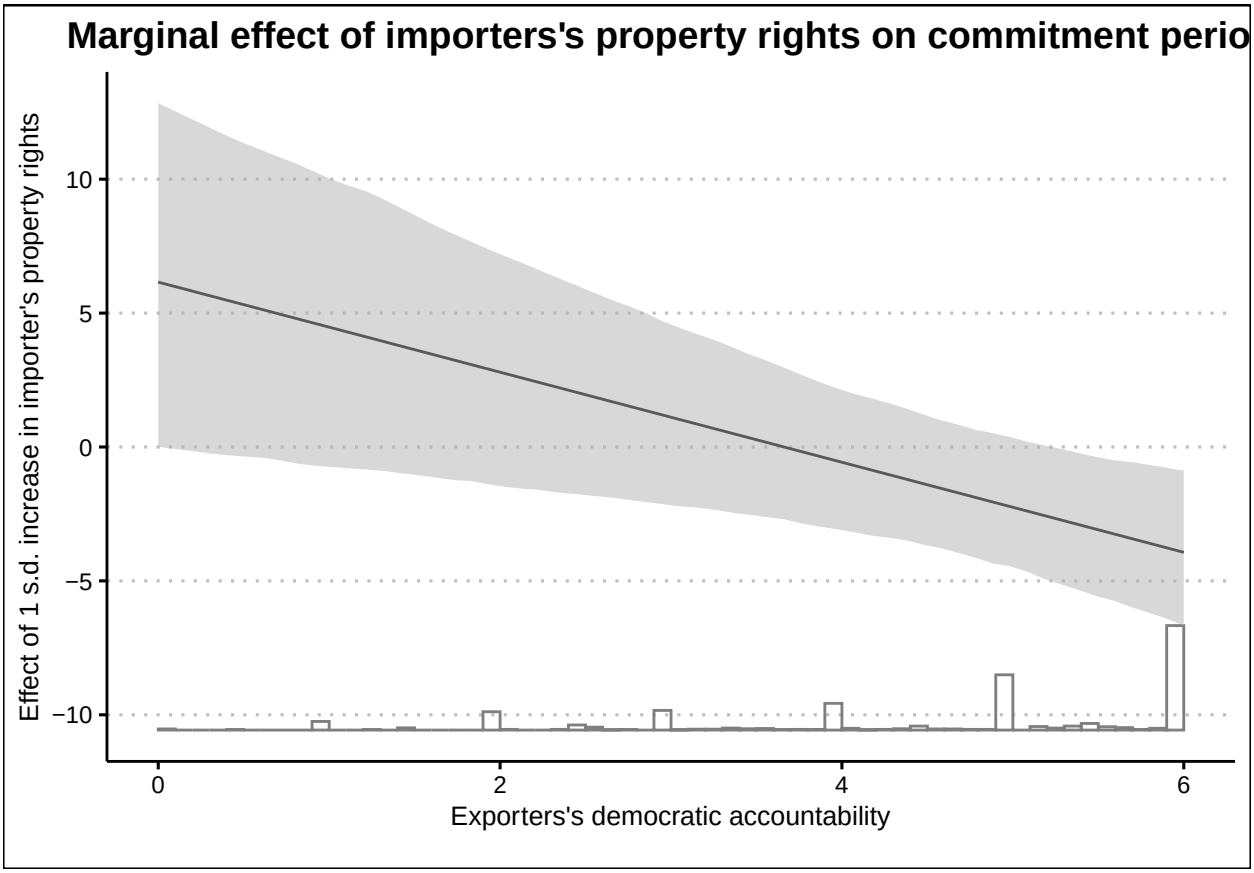


Figure 5. Relationship between substantive flexibility and exit flexibility

```
fig5 <- ggplot(data = iias, aes(x = effective_commitment_years, y = total_srssubs_01)) +
  geom_point() +
  labs(x = "Effective commitment period",
       y = "SRS substantive",
       title = "Substantive flexibility and effective commtiment period in BITs") +
  theme_clean() +
  theme(plot.title = element_text(hjust = 0.5))
fig5
```

```
## Warning: Removed 29 rows containing missing values or values outside the scale range
## (`geom_point()`).
```

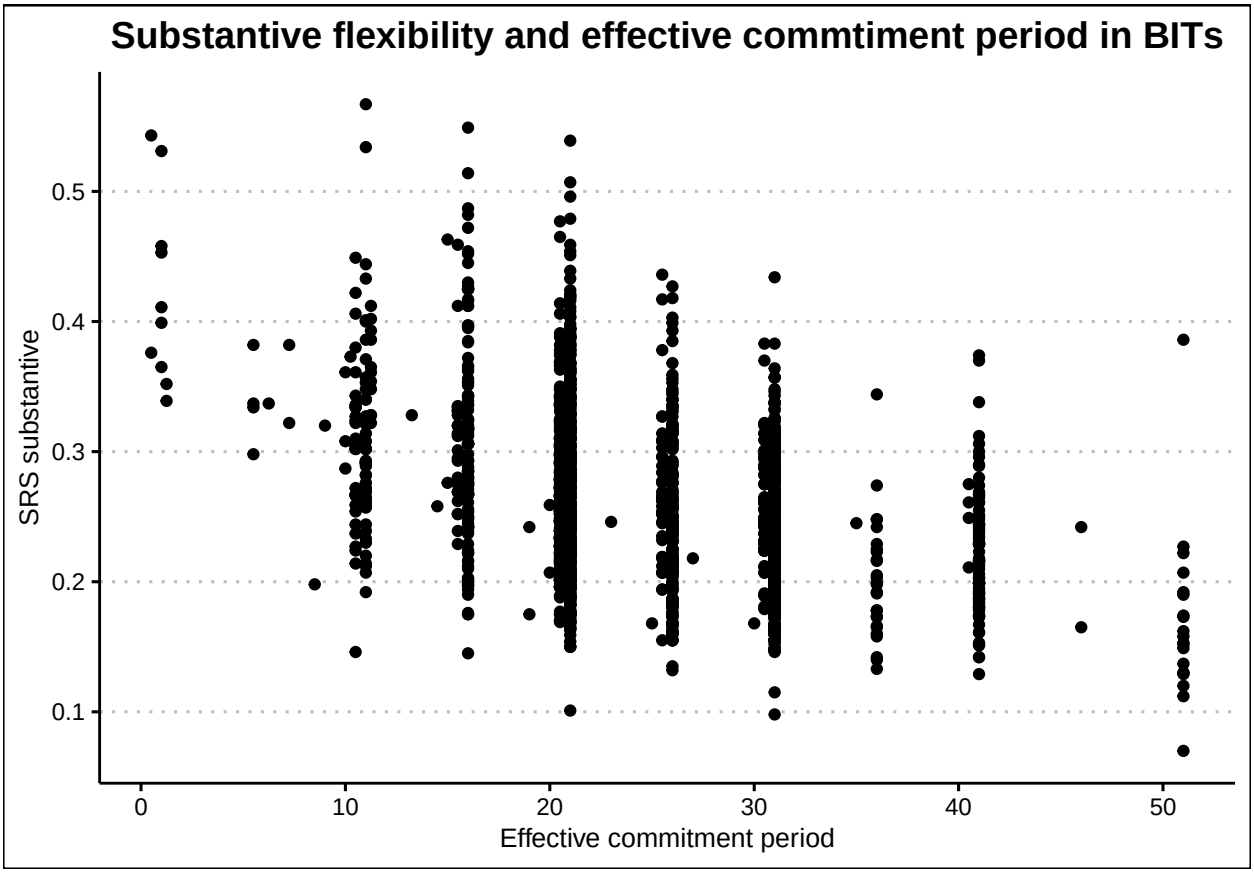


Table A1. Summary statistics

```
vars <- iias %>%
  subset(select = c("term_flexibility_num",
                    "anytime",
                    "anytime_after",
                    "term_window",
                    "effective_commitment_years",

                    "dem_accountability1",
                    "prights_vdem2",

                    "yo_signature",
                    "initial_term_num",
                    "auto_renewal_num",
                    "uni_term_num",
                    "amendment_num",
                    "sunset_num",
                    "ex_healthenv_num",
                    "ex_security_num" ,
                    "ex_other_num" ,
                    "ex_prudential_num" ,
                    "isds_num" ,
                    "ssds_num" ,
                    "total_srssubs_01",
```

```
                      "fdi_inflows_ofgdp1",
                      "fdi_inflows_ofgdp2",
                      "tradeof_gdp1",
                      "tradeof_gdp2",
                      "isds_respondent1_cum",
                      "isds_respondent2_cum",
                      "gov_stability1",
                      "gov_stability2",
                      "fh_ipolity2_1",
                      "fh_ipolity2_2",
                      "polity1",
                      "polity2",
                      "bur_quality1",
                      "bur_quality2"))
```

```
table_summary <- stargazer(as.data.frame(vars), type = "text", out = "table_a1.html", digits = 2, title
                    covariate.labels = c("Termination flexibility",
                      "Anytime",
                      "After initial commitment",
                      "Termination window",
                      "Effective commitment (years)",

                      "Democratic accountability (Party 1)",
                      "PR protection (Party 2)",

                      "Year of signature",
                      "Initial term",
                      "Automatic renewal",
                      "Unilateral termination clause",
                      "Amendment",
                      "Sunset clause",
                      "Health/environment exception",
                      "Security exception",
                      "Other exception",
                      "Prudential carveout",
                      "ISDS clause",
                      "SSDS clause",
                      "SRS substantive",

                      "% FDI inflows of GDP (Party 1)",
                      "% FDI inflows of GDP (Party 2)",
                      "% Trade of GDP (Party1)",
                      "% Trade of GDP (Party 2)",
                      "Cumulative ISDS experience (Party 1)",
                      "Cumulative ISDS experience (Party 2)",
                      "Government stability (Party 1)",
                      "Government stability (Party 2)",
                      "Democracy (Party 1) (FH+Polity2, imputed NAs)",
                      "Democracy (Party 2) (FH+Polity2, imputed NAs)",
                      "Democracy (Party1) Polity2",
                      "Democracy (Party2) Polity2",
                      "Bureaucratic quality (Party 1)",
                      "Bureaucratic quality (Party 2)"))
```

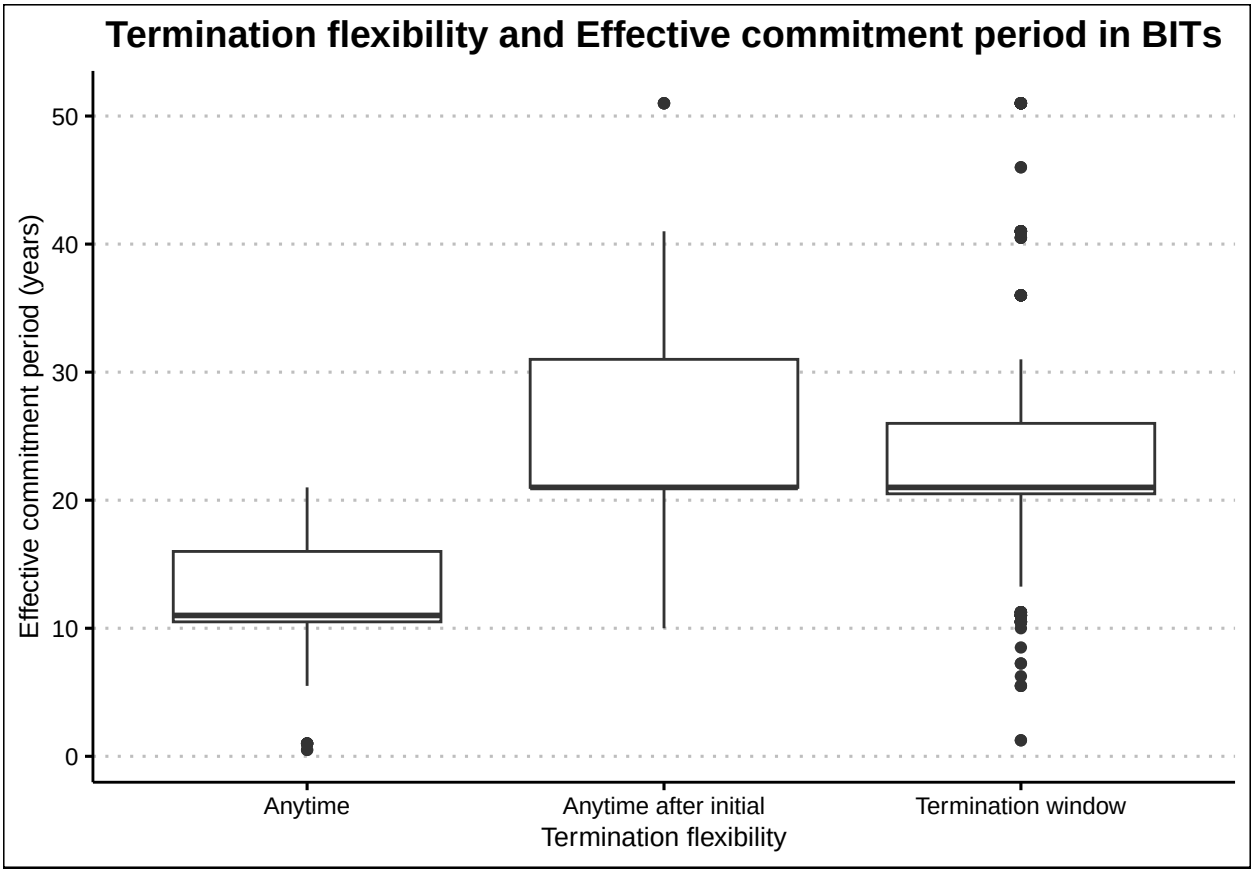
```
##
## Summary Statistics
## ==================================================================================
## Statistic                                        N     Mean   St. Dev.  Min    Max
## ----------------------------------------------------------------------------------
## Termination flexibility                        2,528   1.62     0.55     1      3
## Anytime                                        2,528   0.03     0.18     0      1
## After initial commitment                       2,528   0.55     0.50     0      1
## Termination window                             2,528   0.42     0.49     0      1
## Effective commitment (years)                   2,523  23.78     6.84    0.50  51.00
## Democratic accountability (Party 1)            2,149   4.66     1.51    0.00   6.00
## PR protection (Party 2)                        2,245   0.71     0.22    0.03   0.97
## Year of signature                              2,535 1,996.78   9.20   1,959  2,018
## Initial term                                   2,536  37.60    159.65    1     999
## Automatic renewal                              2,505  627.04   479.64    1     999
## Unilateral termination clause                  2,535   0.99     0.11     0      1
## Amendment                                      2,535   0.22     0.42     0      1
## Sunset clause                                  2,516  12.21     4.29     0      20
## Health/environment exception                   2,536   0.08     0.27     0      1
## Security exception                             2,536   0.14     0.35     0      1
## Other exception                                2,536   0.08     0.27     0      1
## Prudential carveout                            2,536   0.03     0.17     0      1
## ISDS clause                                    2,536   0.95     0.21     0      1
## SSDS clause                                    2,536   1.00     0.06     0      1
## SRS substantive                                2,520   0.26     0.06    0.07   0.57
## % FDI inflows of GDP (Party 1)                 2,245   3.40     6.94   -7.32  120.59
## % FDI inflows of GDP (Party 2)                 2,184   3.76     7.72   -37.15 249.11
## % Trade of GDP (Party1)                        2,258  68.52    45.30    0.37  425.36
## % Trade of GDP (Party 2)                       2,179  81.12    45.41    0.18  437.33
## Cumulative ISDS experience (Party 1)           2,291   0.92     3.27     0      59
## Cumulative ISDS experience (Party 2)           2,272   0.45     1.68     0      23
## Government stability (Party 1)                 2,149   8.21     1.78    3.17  12.00
## Government stability (Party 2)                 1,693   8.20     1.96    2.00  11.58
## Democracy (Party 1) (FH+Polity2, imputed NAs) 2,236   7.68     3.06    0.00  10.00
## Democracy (Party 2) (FH+Polity2, imputed NAs) 2,178   5.67     3.09    0.00  10.00
## Democracy (Party1) Polity2                     2,246   6.09     6.14    -10     10
## Democracy (Party2) Polity2                     2,083   2.05     6.79    -10     10
## Bureaucratic quality (Party 1)                 2,149   3.01     0.95    0.00   4.00
## Bureaucratic quality (Party 2)                 1,693   2.00     0.90    0.00   4.00
## ----------------------------------------------------------------------------------
```

Figure A1. Effective commitment period in BITs

```
iias <- iias %>% mutate(term_flexibility_factor = as.factor(term_flexibility))
iias$term_flexibility_factor <- factor(iias$term_flexibility_factor, levels = c("Anytime", "Anytime aft

#exclude NAs
nonas <- iias %>% filter(!is.na(term_flexibility_factor))

fig_a1 <- ggplot(data = nonas, mapping = aes(x = term_flexibility_factor, exclude = NULL, y = effective_
  geom_boxplot() +
  labs(x = "Termination flexibility",
       y = "Effective commitment period (years)") +
  ggtitle("Termination flexibility and Effective commitment period in BITs") +
```

```
  theme_clean() +
  theme(plot.title = element_text(hjust = 0.5))
fig_a1
```

```
## Warning: Removed 5 rows containing non-finite outside the scale range
## (`stat_boxplot()`).
```