

Code_Income and Democracy

December 11, 2020

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[19]: ##### Table 2 -----  
##### 1. Five-year data #####  
# (1) Pooled OLS  
library("lmtest")  
library("plm")  
library("texreg")  
data1 <- read.csv("5yr_panel.csv", header=TRUE)  
democ1 <- pdata.frame(data1, index="country")  
Democracy.5yr <- democ1$fhpolrigaug  
Income.5yr <- democ1$lrgdpch  
pols <- plm(Democracy.5yr ~ lag(Democracy.5yr) + lag(Income.5yr) + year -1,   
  →democ1, index = c("country", "year"), model = "pooling", subset = sample == 1)  
pols.coef <- coeftest(pols, vcov=vcovHC)  
  
# (2) Fixed effects OLS: Two Ways  
fe1 <- plm(Democracy.5yr ~ lag(Democracy.5yr) + lag(Income.5yr), democ1, index =   
  →c("country", "year"), model = "within", effect="twoways", subset = sample ==   
  →1)  
fe1.coef <- coeftest(fe1, vcov=vcovHC)  
  
# (3) Anderson-Hsiao IV  
hsiao <- plm(diff(Democracy.5yr) ~ lag(diff(Democracy.5yr)) + lag(diff(Income.  
  →5yr)) + year - 1 | lag(Democracy.5yr, 2) + lag(Income.5yr, 2) + year - 1,  
  democ1, index = c("country", "year"), model = "pooling", subset =   
  →sample == 1)  
hsiao.coef <- coeftest(hsiao, vcov=vcovHC)  
  
# (4) Arellano-Bond GMM  
gmm1 <- pgmm(Democracy.5yr ~ lag(Democracy.5yr) + lag(Income.5yr) |   
  →lag(Democracy.5yr, 2) | lag(Income.5yr, 2), democ1, index=c("country", "year"),  
  model="onestep", effect="twoways", subset = sample == 1)  
gmm1.coef <- coeftest(gmm1, vcov=vcovHC)  
  
# (5) Fixed effects OLS  
fe2 <- plm(Democracy.5yr ~ lag(Income.5yr), democ1, index = c("country",   
  →"year"), model = "within", effect="twoways", subset = sample == 1)  
fe2.coef <- coeftest(fe2, vcov=vcovHC)
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#### 2. Annual data ####
# (6) Fixed effects OLS
data2 <- read.csv("annual_panel.csv", header=TRUE)
democ2 <- pdata.frame(data2, index="country")
Democracy.annual <- democ2$fhpplrigaug
Income.annual <- democ2$lrgdpch
fe3 <- plm(Democracy.annual ~ lag(Democracy.annual) + lag(Income.annual),
  →democ2, index = c("country", "year"), model = "within",
    effect="twoways", subset = sample == 1)
fe3.coef <- coeftest(fe3, vcov=vcovHC)

#### 3. Ten-year data ####
# (7) Fixed effects OLS
data3 <- read.csv("10yr_panel.csv", header=TRUE)
democ3 <- pdata.frame(data3, index="country")
Democracy.10yr <- democ3$fhpplrigaug
Income.10yr <- democ3$lrgdpch
fe4 <- plm(Democracy.10yr ~ lag(Democracy.10yr) + lag(Income.10yr), democ3,
  →index = c("country", "year"), model = "within",
    effect="twoways", subset = sample == 1)
fe4.coef <- coeftest(fe4, vcov=vcovHC)

#### 4. Twenty-year data ####
# (9) Fixed effects OLS
data4 <- read.csv("20yr_panel.csv", header=TRUE)
democ4 <- pdata.frame(data4, index="country")
Democracy.20yr <- democ4$fhpplrigaug
Income.20yr <- democ4$lrgdpch
fe5 <- plm(Democracy.20yr ~ lag(Democracy.20yr) + lag(Income.20yr), democ4,
  →index = c("country", "year"), model = "within",
    effect="twoways", subset = sample == 1)
fe5.coef <- coeftest(fe5, vcov=vcovHC)

#### 5. Compare the models ####
screenreg(list("Pooled OLS (1)" = pols.coef, "Fixed effects (2)" = fe1.coef,
  →"Anderson-Hsiao IV (3)" = hsiao.coef, "Arellano-Bond GMM (4)" = gmm1.coef,
    "Fixed effects OLS (5)" = fe2.coef, "Fixed effects OLS (6)" = fe3.
  →coef, "Fixed effects OLS (7)" = fe4.coef, "Fixed effects OLS (9)" = fe5.coef))

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	Pooled OLS (1)	Fixed effects (2)	Anderson-Hsiao IV (3)	Arellano-Bond GMM (4)	Fixed effects OLS (5)	Fixed effects OLS (6)	Fixed effects OLS (7)	Fixed effects OLS (9)
\nlag(Democracy.5yr)	0.69 ***	0.38 ***	0.51 ***	(0.03)	(0.05)	(0.14)	(0.08)	(0.01)
\nlag(Income.5yr)	0.08 ***	0.01	-0.00	0.05	(0.01)	(0.03)	(0.20)	(0.04)
\nyear	-0.00 ***	0.00 *	(0.00)	(0.00)	\nlag(diff(Democracy.5yr))	0.55 ***	\n	

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(0.10) \nlag(diff(Income.5yr)) -0.18 \n (0.12) \n3 0.05 \n (0.04) \n4 0.01 \n (0.06) \n5
-0.10 \n (0.09) \n6 -0.05 \n (0.11) \n7 0.04 \n (0.12) \n8 0.03 \n (0.15) \n9 0.06 \n
(0.15) \n10 0.09 \n (0.18) \n11 0.09 \n (0.18) \nlag(Democracy.annual) 0.82 *** \n (0.02)
\nlag(Income.annual) -0.01 \n (0.01) \nlag(Democracy.10yr) -0.02 \n (0.07) \nlag(Income.10yr)
0.05 \n (0.06) \nlag(Democracy.20yr) -0.58 *** \n (0.12) \nlag(Income.20yr) -0.03 \n (0.09)
\n=====
p < 0.001; ** p < 0.01; * p < 0.05\n'
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[5]: ##### Table 3 -----
##### 1. Five-year data #####
# (1) Pooled OLS
data1.1 <- read.csv("5yr_panel.csv", header=TRUE)
democ1.1 <- pdata.frame(data1.1, index="country")
Democracy1.5yr <- democ1.1$fhpolrigaug
Income1.5yr <- democ1.1$lrgdpch
pols.1 <- plm(Democracy1.5yr ~ lag(Democracy1.5yr) + lag(Income1.5yr) + year -1,
  →democ1.1, index = c("country", "year"), model = "pooling", subset = sample ==
  →1)
pols.1.coef <- coeftest(pols.1, vcov=vcovHC)

# (2) Fixed effects OLS: Two Ways
fe1.1 <- plm(Democracy1.5yr ~ lag(Democracy1.5yr) + lag(Income1.5yr), democ1.1,
  index = c("country", "year"), model = "within",
  effect="twoways", subset = sample == 1)
fe1.1.coef <- coeftest(fe1.1, vcov=vcovHC)

# (3) Anderson-Hsiao IV
hsiao.1 <- plm(diff(Democracy1.5yr) ~ lag(diff(Democracy1.5yr)) +
  →lag(diff(Income1.5yr)) + year - 1 | lag(Democracy1.5yr, 2) + lag(Income1.5yr,
  →2) + year - 1,
  democ1.1, index = c("country", "year"), model = "pooling", subset
  →= sample == 1)
hsiao.1.coef <- coeftest(hsiao.1, vcov=vcovHC)

# (4) Arellano-Bond GMM
gmm1.1 <- pgmm(Democracy1.5yr ~ lag(Democracy1.5yr) + lag(Income1.5yr) |
  →lag(Democracy1.5yr, 2:99) | lag(Income1.5yr, 2), democ1.1, index=c("country",
  →"year"),
  model="onestep", effect="twoways", subset = sample == 1)
gmm1.1.coef <- coeftest(gmm1.1, vcov=vcovHC)

# (5) Fixed effects OLS
fe2.1 <- plm(Democracy1.5yr ~ lag(Income1.5yr), democ1.1, index = c("country",
  →"year"), model = "within", effect="twoways", subset = sample == 1)
fe2.1.coef <- coeftest(fe2.1, vcov=vcovHC)

##### 2. Annual data #####
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# (6) Fixed effects OLS
data2.1 <- read.csv("annual_panel.csv", header=TRUE)
democ2.1 <- pdata.frame(data2.1, index="country")
Democracy1.annual <- democ2.1$fhpolrigaug
Income1.annual <- democ2.1$lrgdpch
fe3.1 <- plm(Democracy1.annual ~ lag(Democracy1.annual) + lag(Income1.annual),
  →democ2.1, index = c("country", "year"), model = "within",
    effect="twoways", subset = sample == 1)
fe3.1.coef <- coeftest(fe3.1, vcov=vcovHC)

#### 3. Ten-year data ####
# (7) Fixed effects OLS
data3.1 <- read.csv("10yr_panel.csv", header=TRUE)
democ3.1 <- pdata.frame(data3.1, index="country")
Democracy1.10yr <- democ3.1$fhpolrigaug
Income1.10yr <- democ3.1$lrgdpch
fe4.1 <- plm(Democracy1.10yr ~ lag(Democracy1.10yr) + lag(Income1.10yr), democ3.
  →1, index = c("country", "year"), model = "within",
    effect="twoways", subset = sample == 1)
fe4.1.coef <- coeftest(fe4.1, vcov=vcovHC)

#### 4. Twenty-year data ####
# (9) Fixed effects OLS
data4.1 <- read.csv("20yr_panel.csv", header=TRUE)
democ4.1 <- pdata.frame(data4.1, index="country")
Democracy1.20yr <- democ4.1$fhpolrigaug
Income1.20yr <- democ4.1$lrgdpch
fe5.1 <- plm(Democracy1.20yr ~ lag(Democracy1.20yr) + lag(Income1.20yr), democ4.
  →1, index = c("country", "year"), model = "within",
    effect="twoways", subset = sample == 1)
fe5.1.coef <- coeftest(fe5.1, vcov=vcovHC)

#### 5. Compare the models ####
screenreg(list("Pooled OLS (1)" = pols.1.coef, "Fixed effects (2)" = fe1.1.coef,
  →"Anderson-Hsiao IV (3)" = hsiao.1.coef, "Arellano-Bond GMM (4)" = gmm1.1.coef,
    "Fixed effects OLS (5)" = fe2.1.coef, "Fixed effects OLS (6)" =
  →fe3.1.coef, "Fixed effects OLS (7)" = fe4.1.coef, "Fixed effects OLS (9)" =
  →fe5.1.coef))

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Pooled OLS (1) Fixed effects (2) Anderson-Hsiao IV (3) Arellano-Bond GMM (4) Fixed effects
OLS (5) Fixed effects OLS (6) Fixed effects OLS (7) Fixed effects OLS (9)\n-----

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-----\nlag(Democracy1.5yr) 0.69 *** 0.38 *** 0.50
*** \n (0.03) (0.05) (0.09) \nlag(Income1.5yr) 0.08 *** 0.01 -0.09 0.05 \n (0.01) (0.03) (0.08)
(0.04) \nyear -0.00 *** 0.00 * \n (0.00) (0.00) \nlag(diff(Democracy1.5yr)) 0.55 *** \n (0.10)
\nlag(diff(Income1.5yr)) -0.18 \n (0.12) \n3 0.05 \n (0.03) \n4 0.03 \n (0.04) \n5 -0.06 \n (0.05)

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\n6 -0.00 \n (0.06) \n7 0.09 \n (0.06) \n8 0.08 \n (0.07) \n9 0.12 \n (0.07) \n10 0.16 \n (0.08)
\n11 0.16 \n (0.08) \nlag(Democracy1.annual) 0.82 *** \n (0.02) \nlag(Income1.annual)
-0.01 \n (0.01) \nlag(Democracy1.10yr) -0.02 \n (0.07) \nlag(Income1.10yr) 0.05 \n
(0.06) \nlag(Democracy1.20yr) -0.58 *** \n (0.12) \nlag(Income1.20yr) -0.03 \n (0.09)
\n=====
p < 0.001; ** p < 0.01; * p < 0.05\n'

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[5]: ##### Table 4 -----
##### Five-year data #####
##### 1. Balanced panel, 1970-2000
# (1) Fixed effects OLS
data1.2 <- read.csv("Table4_1.csv", header=TRUE)
democ1.2 <- pdata.frame(data1.2, index = "country")
democ1.2 <- na.omit(democ1.2)
Democracy.1970_2000 <- democ1.2$fhpolrigaug
Income.1970_2000 <- democ1.2$lrgdpch
fe1.2 <- plm(Democracy.1970_2000 ~ lag(Democracy.1970_2000) + lag(Income.
  →1970_2000), democ1.2, index = c("country", "year"),
  model = "within", effect="twoways")
fe1.2.coef <- coeftest(fe1.2, vcov=vcovHC)

# (2) Arellano Bond GMM
gmm1.2 <- pgmm(Democracy.1970_2000 ~ lag(Democracy.1970_2000) + lag(Income.
  →1970_2000) | lag(Democracy.1970_2000, 2:99) | lag(Income.1970_2000, 2),
  democ1.2, index=c("country", "year"), model="onestep",
  →effect="twoways")
gmm1.2.coef <- coeftest(gmm1.2, vcov=vcovHC)

##### 2. Base sample, 1960-2000, without former socialist countries
# (3) Fixed effects OLS
data2.2 <- read.csv("Table4_2.csv", header=TRUE)
democ2.2 <- pdata.frame(data2.2, index = "country")
Democracy.no_socialist <- democ2.2$fhpolrigaug
Income.no_socialist <- democ2.2$lrgdpch
fe2.2 <- plm(Democracy.no_socialist ~ lag(Democracy.no_socialist) + lag(Income.
  →no_socialist), democ2.2, index = c("country", "year"),
  model = "within", effect="twoways")
fe2.2.coef <- coeftest(fe2.2, vcov=vcovHC)

# (4) Arellano Bond GMM
gmm2.2 <- pgmm(Democracy.no_socialist ~ lag(Democracy.no_socialist) + lag(Income.
  →no_socialist) | lag(Democracy.no_socialist, 2:99) | lag(Income.no_socialist, 2),
  democ2.2, index=c("country", "year"), model="onestep",
  →effect="twoways")
gmm2.2.coef <- coeftest(gmm2.2, vcov=vcovHC)

##### 3. Base sample, 1960-2000

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data3.2 <- read.csv("Table4_3.csv", header=TRUE)
democ3.2 <- pdata.frame(data3.2, index = "country")
Democracy.1960_2000 <- democ3.2$fhpolrigaug
Income.1960_2000 <- democ3.2$lrgdpch
# (5) Fixed effects OLS
fe3.2 <- plm(Democracy.1960_2000 ~ lag(Democracy.1960_2000) + lag(Income.
  →1960_2000) + lag(lpop) + lag(medage) + lag(age_veryyoung) + lag(age_young)
  + lag(age_midage) + lag(age_old), democ3.2, index = c("country", "
  →year"), model = "within", effect="twoways", subset = sample == 1)
fe3.2.coef <- coeftest(fe3.2, vcov=vcovHC)

# (7) Fixed effects OLS
fe4.2 <- plm(Democracy.1960_2000 ~ lag(Democracy.1960_2000) + lag(Income.
  →1960_2000) + lag(education) + lag(lpop) + lag(medage) + lag(age_veryyoung)
  + lag(age_young) + lag(age_midage) + lag(age_old), democ3.2, index=
  →c("country", "year"), model = "within", effect="twoways", subset = sample ==
  →1)
fe4.2.coef <- coeftest(fe4.2, vcov=vcovHC)

#### 4. Compare the models ####
screenreg(list("Fixed effects OLS (1)" = fe1.2.coef, "Arellano-Bond GMM (2)" =
  →gmm1.2.coef, "Fixed effects (3)" = fe2.2.coef,
  "Arellano-Bond GMM (4)" = gmm2.2.coef, "Fixed effects OLS (5)" =
  →fe3.2.coef, "Fixed effects OLS (7)" = fe4.2.coef))

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Fixed effects OLS (1) Arellano-Bond GMM (2) Fixed effects (3) Arellano-Bond GMM (4) Fixed

effects OLS (5) Fixed effects OLS (7)\n=====

\nlag(Democracy.1970_2000)

0.32 *** 0.28 \n (0.06) (0.17) \nlag(Income.1970_2000) -0.05 -0.63 * \n (0.04) (0.29) \n3 0.13 ***

0.02 \n (0.04) (0.03) \n4 0.22 *** 0.09 * \n (0.07) (0.04) \n5 0.28 ** 0.12 * \n (0.09) (0.05) \n6

0.31 ** 0.18 ** \n (0.11) (0.06) \n7 0.38 ** 0.21 *** \n (0.13) (0.06) \nlag(Democracy.no_socialist)

0.34 *** 0.39 *** \n (0.05) (0.10) \nlag(Income.no_socialist) -0.03 -0.23 \n (0.04) (0.12) \n8

0.19 ** \n (0.07) \n9 0.28 *** \n (0.08) \nlag(Democracy.1960_2000) 0.35 *** 0.35 *** \n

(0.05) (0.05) \nlag(Income.1960_2000) 0.01 -0.00 \n (0.04) (0.04) \nlag(lpop) -0.11 -0.04 \n

(0.09) (0.10) \nlag(medage) 0.03 0.01 \n (0.02) (0.02) \nlag(age_veryyoung) 2.35 0.69 \n

(1.61) (1.64) \nlag(age_young) 1.40 -0.22 \n (1.32) (1.34) \nlag(age_midage) -1.07 -1.34

\n (1.29) (1.32) \nlag(age_old) 0.22 0.66 \n (1.18) (1.33) \nlag(education) -0.01 \n (0.02)

\n=====

p < 0.001; ** p < 0.01; * p < 0.05\n'

[6]: ##### Table 5 -----

(1) Pooled OLS

data1.3 <- read.csv("5yr_panel.csv", header=TRUE)

democ1.3 <- pdata.frame(data1.3, index="country")

Democracy.IV_saving <- democ1.3\$fhpolrigaug

Income.IV_saving <- democ1.3\$lrgdpch

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pols.3 <- plm(Democracy.IV_saving ~ lag(Income.IV_saving) + year -1 | .-
  →lag(Income.IV_saving) + lag(nsave), democ1.3, index = c("year", "country"),
    model = "pooling", subset = sample == 1)
pols.3.coef <- coeftest(pols.3, vcov=vcovHC)

# (2) Fixed effects OLS
fe1.3 <- plm(Democracy.IV_saving ~ lag(Income.IV_saving) | .- lag(Income.
  →IV_saving) + lag(nsave), democ1.3, index = c("country", "year"), model =
  →"within",
    effect="twoways", subset = sample == 1)
fe1.3.coef <- coeftest(fe1.3)

# (3) Fixed effects OLS
fe2.3 <- plm(Democracy.IV_saving ~ lag(Democracy.IV_saving) + lag(Income.
  →IV_saving) | .- lag(Income.IV_saving) + lag(nsave), democ1.3, index =
  →c("country", "year"),
    model = "within", effect="twoways", subset = sample == 1)
fe2.3.coef <- coeftest(fe2.3, vcov=vcovHC)

#### Compare the models ####
screenreg(list("Pooled OLS (1)" = pols.3.coef, "Fixed effects (2)" = fe1.3.coef,
  →"Fixed effects (3)" = fe2.3.coef))

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'\n=====\\n
Pooled OLS (1) Fixed effects (2) Fixed effects (3)\\n-----\\n
\\nlag(Income.IV_saving) 0.18 *** -0.02 -0.03 \\n (0.03)
(0.07) (0.08) \\nyear -0.00 *** \\n (0.00) \\nlag(Democracy.IV_saving) 0.38 *** \\n (0.05)
\\n=====\\n
p < 0.001; ** p < 0.01; * p < 0.05\\n'

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[7]: #### Table 6 -----

# (1) Pooled OLS
data1.4 <- read.csv("5yr_panel.csv", header=TRUE)
democ1.4 <- pdata.frame(data1.4, index="country")
Democracy.IV.world_income <- democ1.4$fhpolrigaug
Income.IV.world_income <- democ1.4$lrgdpch
pols.4 <- plm(Democracy.IV.world_income ~ lag(Income.IV.world_income) + year -1
  →| .- lag(Income.IV.world_income) + lag(worldincome),
    democ1.4, index = c("year", "country"), model = "pooling", subset
  →= sample == 1)
pols.4.coef <- coeftest(pols.4, vcov=vcovHC)

# (2) Fixed effects OLS
fe1.4 <- plm(Democracy.IV.world_income ~ lag(Income.IV.world_income) | .-
  →lag(Income.IV.world_income) + lag(worldincome),
    democ1.4, index = c("country", "year"), model = "within",

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        effect="twoways", subset = sample == 1)
fe1.4.coef <- coeftest(fe1.4)

# (3) Fixed effects OLS
fe2.4 <- plm(Democracy.IV.world_income ~ lag(Democracy.IV.world_income) +
  →lag(Income.IV.world_income) | .- lag(Income.IV.world_income) +
  →lag(worldincome),
        democ1.4, index = c("country", "year"), model = "within",
        effect="twoways", subset = sample == 1)
fe2.4.coef <- coeftest(fe2.4)

#### Compare the models ####
screenreg(list("Pooled OLS (1)" = pols.4.coef, "Fixed effects (2)" = fe1.4.coef,
  →"Fixed effects (3)" = fe2.4.coef))

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Pooled OLS (1) Fixed effects (2) Fixed effects (3)\`n-----
-----\`nlag(Income.IV.world_income) 0.17 -0.21 -0.12 \`n (0.13)
(0.12) (0.10) \`nyear -0.00 \`n (0.00) \`nlag(Democracy.IV.world_income) 0.39 *** \`n (0.04)
\`n=====
p < 0.001; ** p < 0.01; * p < 0.05\`n'

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[7]: #### Table 7 -----
#### 1. Panel A ####
# (1) Pooled PLS
data1.5 <- read.csv("25yr_panel.csv", header=TRUE)
democ1.5 <- pdata.frame(data1.5, index="country")
Democracy.25yr <- democ1.5$polity4
Income.25yr <- democ1.5$lrgdpmad
pols1.5 <- plm(Democracy.25yr ~ lag(Democracy.25yr) + lag(Income.25yr) + year
  →-1, democ1.5, index = "madid", model = "pooling", subset = sample == 1)
pols1.5.coef <- coeftest(pols1.5, vcov=vcovHC)

# (2) Fixed Effects OLS
fe1.5 <- plm(Democracy.25yr ~ lag(Democracy.25yr) + lag(Income.25yr), democ1.5,
  →index = "madid", model = "within", effect="twoways", subset = sample == 1)
fe1.5.coef <- coeftest(fe1.5, vcov=vcovHC)

# (3) Arellano-Bond GMM
gmm1.5 <- pgmm(Democracy.25yr ~ lag(Democracy.25yr) + lag(Income.25yr) |
  →lag(Democracy.25yr, 2:99) | lag(Income.25yr, 2),
        democ1.5, index=c("country", "year"), model="onestep",
  →effect="twoways", subset = sample == 1)
gmm1.5.coef <- coeftest(gmm1.5, vcov=vcovHC)

# (4) Fixed Effects OLS

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fe2.5 <- plm(Democracy.25yr ~ lag(Income.25yr), democ1.5, index = "madid", model_
  ↳ "within", effect="twoways", subset = sample == 1)
fe2.5.cocef <- coeftest(fe2.5, vcov=vcovHC)

# (5) Fixed Effects OLS
data2.5 <- read.csv("Table7_PanelA_col5.csv", header=TRUE)
democ2.5 <- pdata.frame(data2.5, index="country")
Democracy1.25yr <- democ2.5$polity4
Income1.25yr <- democ2.5$lrgdpmad
fe3.5 <- plm(Democracy1.25yr ~ lag(Democracy1.25yr) + lag(Income1.25yr), democ2.
  ↳ 5, index = "madid", model = "within", effect="twoways")
fe3.5.coef <- coeftest(fe3.5, vcov=vcovHC)

#### Compare the models ####
screenreg(list("Pooled OLS (1)" = pols1.5.coef, "Fixed effects OLS (2)" = fe.1.5.
  ↳ coef, "Arellano-Bond GMM (3)" = gmm1.5.coef, "Fixed effects OLS (4)" = fe2.5.
  ↳ cocef,
              "Fixed effects OLS (5)" = fe3.5.coef))

#### 2. Panel B ####
# (1) Pooled PLS
data3.5 <- read.csv("50yr_panel.csv", header=TRUE)
democ3.5 <- pdata.frame(data3.5, index="country")
Democracy.50yr <- democ3.5$polity4
Income.50yr <- democ3.5$lrgdpmad
pols2.5 <- plm(Democracy.50yr ~ lag(Democracy.50yr) + lag(Income.50yr) + year_
  ↳ -1, democ3.5, index = "madid", model = "pooling", subset = sample == 1)
pols2.5.coef <- coeftest(pols2.5, vcov=vcovHC)

# (2) Fixed Effects OLS
fe4.5 <- plm(Democracy.50yr ~ lag(Democracy.50yr) + lag(Income.50yr), democ3.5,
  ↳ index = "madid", model = "within", effect="twoways", subset = sample == 1)
fe4.5.coef <- coeftest(fe4.5, vcov=vcovHC)

# (3) Arellano-Bond GMM
gmm2.5 <- pgmm(Democracy.50yr ~ lag(Democracy.50yr) + lag(Income.50yr) |_
  ↳ lag(Democracy.50yr, 2:99) | lag(Income.50yr, 2),
              democ3.5, index=c("country", "year"), model="onestep",_
  ↳ effect="twoways", subset = sample == 1)
gmm2.5.coef <- coeftest(gmm2.5, vcov=vcovHC)

# (4) Fixed Effects OLS
fe5.5 <- plm(Democracy.50yr ~ lag(Income.50yr), democ3.5, index = "madid", model_
  ↳ "within", effect="twoways", subset = sample == 1)
fe5.5.coef <- coeftest(fe5.5, vcov=vcovHC)

```

```
# (5) Fixed Effects OLS
data4.5 <- read.csv("Table7_PanelB_col5.csv")
democ4.5 <- pdata.frame(data4.5, index="country")
Democracy1.50yr <- democ4.5$polity4
Income1.50yr <- democ4.5$lrgdpmad
fe6.5 <- plm(Democracy1.50yr ~ lag(Democracy1.50yr) + lag(Income1.50yr), democ4.5,
  index = "madid", model = "within", effect="twoways")
fe6.5.coef <- coeftest(fe6.5, vcov=vcovHC)

#### Compare the models ####
screenreg(list("Pooled OLS (1)" = pols2.5.coef, "Fixed effects OLS (2)" = fe4.5.coef,
  "Arellano-Bond GMM (3)" = gmm2.5.coef, "Fixed effects OLS (4)" = fe5.5.coef,
  "Fixed effects OLS (5)" = fe6.5.coef))
```

```
\n=====
Pooled OLS (1) Fixed effects OLS (2) Arellano-Bond GMM (3) Fixed effects OLS (4) Fixed
effects OLS (5)\n-----
\nlag(Democracy.25yr) 0.47 *** 0.19 * 0.43 \n (0.08) (0.09) (0.22)
\nlag(Income.25yr) 0.14 *** -0.02 -0.50 0.00 \n (0.03) (0.10) (0.27) (0.10) \nyear -0.00 ** \n
(0.00) \n3 0.11 \n (0.08) \n4 0.37 * \n (0.18) \n5 0.62 * \n (0.31) \n6 0.76 * \n (0.38) \n7
1.28 * \n (0.57) \nlag(Democracy1.25yr) 0.21 \n (0.12) \nlag(Income1.25yr) 0.07 \n (0.10)
\n=====
p < 0.001; ** p < 0.01; * p < 0.05\n'

\n=====
Pooled OLS (1) Fixed effects OLS (2) Arellano-Bond GMM (3) Fixed effects OLS (4) Fixed effects
OLS (5)\n-----
\nlag(Democracy.50yr) 0.19 -0.25 ** 0.19 \n (0.10) (0.08) (0.31) \nlag(Income.50yr)
0.25 *** 0.04 -0.46 -0.00 \n (0.04) (0.09) (0.30) (0.09) \nyear -0.00 *** \n (0.00) \n3 0.26 \n (0.19)
\n4 0.87 * \n (0.39) \nlag(Democracy1.50yr) -0.27 \n (0.14) \nlag(Income1.50yr) 0.03 \n (0.17)
\n=====
p < 0.001; ** p < 0.01; * p < 0.05\n'
```

```
[8]: ##### Table 8A -----
# (1) OLS
data500.1 <- read.csv("500yr_panel.csv", header=TRUE)
democ500.1 <- pdata.frame(data500.1, index="country")
Democracy.500yr <- democ500.1$democ
Income.500yr <- democ500.1$growth
OLS1.1 <- plm(Democracy.500yr ~ Income.500yr, democ500.1, index = "madid", model="pooling", subset = world == 1)
OLS1.1.coef <- coeftest(OLS1.1, vcov=vcovHC)

# (2) OLS
OLS2.1 <- plm(Democracy.500yr ~ Income.500yr + consfirstaug + indcent, democ500.1, index = "madid", model = "pooling", subset = world == 1)
```

```

OLS2.1.coef <- coeftest(OLS2.1, vcov=vcovHC)

# (3) OLS
OLS3.1 <- plm(Democracy.500yr ~ Income.500yr + rel_catho80 + rel_muslim80 +
  ↪rel_protmg80, democ500.1, index = "madid",
  model = "pooling", subset = world == 1)
OLS3.1.coef <- coeftest(OLS3.1, vcov=vcovHC)

# (4) OLS
OLS4.1 <- plm(Democracy.500yr ~ Income.500yr + consfirstaug + indcent +
  ↪rel_catho80 + rel_muslim80 + rel_protmg80, democ500.1, index = "madid",
  model = "pooling", subset = world == 1)
OLS4.1.coef <- coeftest(OLS4.1, vcov=vcovHC)

#### Compare the models ####
screenreg(list("OLS (1)" = OLS1.1.coef, "OLS (2)" = OLS2.1.coef, "OLS (3)" =
  ↪OLS3.1.coef, "OLS (4)" = OLS4.1.coef))

```

```

\ n===== \ n OLS (1) OLS
(2) OLS (3) OLS (4) \ n----- \ n(Intercept) 0.40 *** 4.37
*** 0.48 *** 3.03 ** \ n (0.05) (0.87) (0.08) (0.95) \ nIncome.500yr 0.13 *** 0.06 * 0.09
*** 0.05 \ n (0.02) (0.03) (0.02) (0.02) \ nconsfirstaug 0.26 *** 0.16 * \ n (0.07) (0.07)
\ nindcent -0.21 *** -0.13 ** \ n (0.04) (0.05) \ nrel_catho80 0.15 0.12 \ n (0.08) (0.09)
\ nrel_muslim80 -0.30 ** -0.23 * \ n (0.10) (0.10) \ nrel_protmg80 0.19 0.18 \ n (0.10) (0.10)
\ n===== \ n*** p < 0.001; **
p < 0.01; * p < 0.05 \ n'

```

```

[9]: #### Table 8B -----
# (1) OLS
data500.2 <- read.csv("Table8B.csv")
democ500.2 <- pdata.frame(data500.2, index="country")
Democracy1.500yr <- democ500.2$democ
Income1.500yr <- democ500.2$growth
OLS1.2 <- plm(Democracy1.500yr ~ Income1.500yr, democ500.2, index = "madid",
  ↪model = "pooling")
OLS1.2.coef <- coeftest(OLS1.2, vcov=vcovHC)

# (2) OLS
OLS2.2 <- plm(Democracy1.500yr ~ Income1.500yr + consfirstaug + indcent,
  ↪democ500.2, index = "madid", model = "pooling")
OLS2.2.coef <- coeftest(OLS2.2, vcov=vcovHC)

# (3) OLS
OLS3.2 <- plm(Democracy1.500yr ~ Income1.500yr + rel_catho80 + rel_muslim80 +
  ↪rel_protmg80, democ500.2, index = "madid", model = "pooling")
OLS3.2.coef <- coeftest(OLS3.2, vcov=vcovHC)

```

```

# (4) OLS
OLS4.2 <- plm(Democracy1.500yr ~ Income1.500yr + consfirstaug + indcent +
  →rel_cath80 + rel_muslim80 + rel_protmg80, democ500.2, index = "madid",
    model = "pooling")
OLS4.2.coef <- coeftest(OLS4.2, vcov=vcovHC)

# (5) OLS
OLS5.2 <- plm(Democracy1.500yr ~ Income1.500yr + lpd1500s, democ500.2, index =
  →"madid", model = "pooling")
OLS5.2.coef <- coeftest(OLS5.2, vcov=vcovHC)

# (6) OLS
OLS6.2 <- plm(Democracy1.500yr ~ Income1.500yr + consfirstaug + indcent +
  →lpd1500s, democ500.2, index = "madid", model = "pooling")
OLS6.2.coef <- coeftest(OLS6.2, vcov=vcovHC)

# (7) OLS
OLS7.2 <- plm(Democracy1.500yr ~ Income1.500yr + consfirstaug + indcent +
  →rel_cath80 + rel_muslim80 + rel_protmg80 + lpd1500s,
    democ500.2, index = "madid", model = "pooling")
OLS7.2.coef <- coeftest(OLS7.2, vcov=vcovHC)

#### Compare the models ####
screenreg(list("OLS (1)" = OLS1.2.coef, "OLS (2)" = OLS2.2.coef, "OLS (3)" =
  →OLS3.2.coef, "OLS (4)" = OLS4.2.coef), "OLS (5)" = OLS5.2.coef,
    "OLS (6)" = OLS6.2.coef, "OLS (7)" = OLS7.2.coef)

```

```

\`n=====\\`n
(1) OLS (2) OLS (3) OLS (4)\\`n-----\\`n(Intercept)
0.41 *** 4.09 *** 0.30 ** 2.31 \\`n (0.05) (0.93) (0.09) (1.61) \\`nIncome1.500yr 0.14 ***
0.07 0.10 *** 0.06 \\`n (0.02) (0.03) (0.02) (0.03) \\`nconsfirstaug 0.19 0.19 \\`n (0.10) (0.11)
\\`nindcent -0.19 *** -0.10 \\`n (0.05) (0.08) \\`nrel_cath80 0.31 ** 0.28 \\`n (0.10) (0.16)
\\`nrel_muslim80 0.02 0.06 \\`n (0.13) (0.13) \\`nrel_protmg80 0.51 * 0.49 *\\`n (0.21) (0.21)
\\`n=====\\`n*** p < 0.001; **
p < 0.01; * p < 0.05\\`n'

```

```
[11]: library("readxl")
```

```

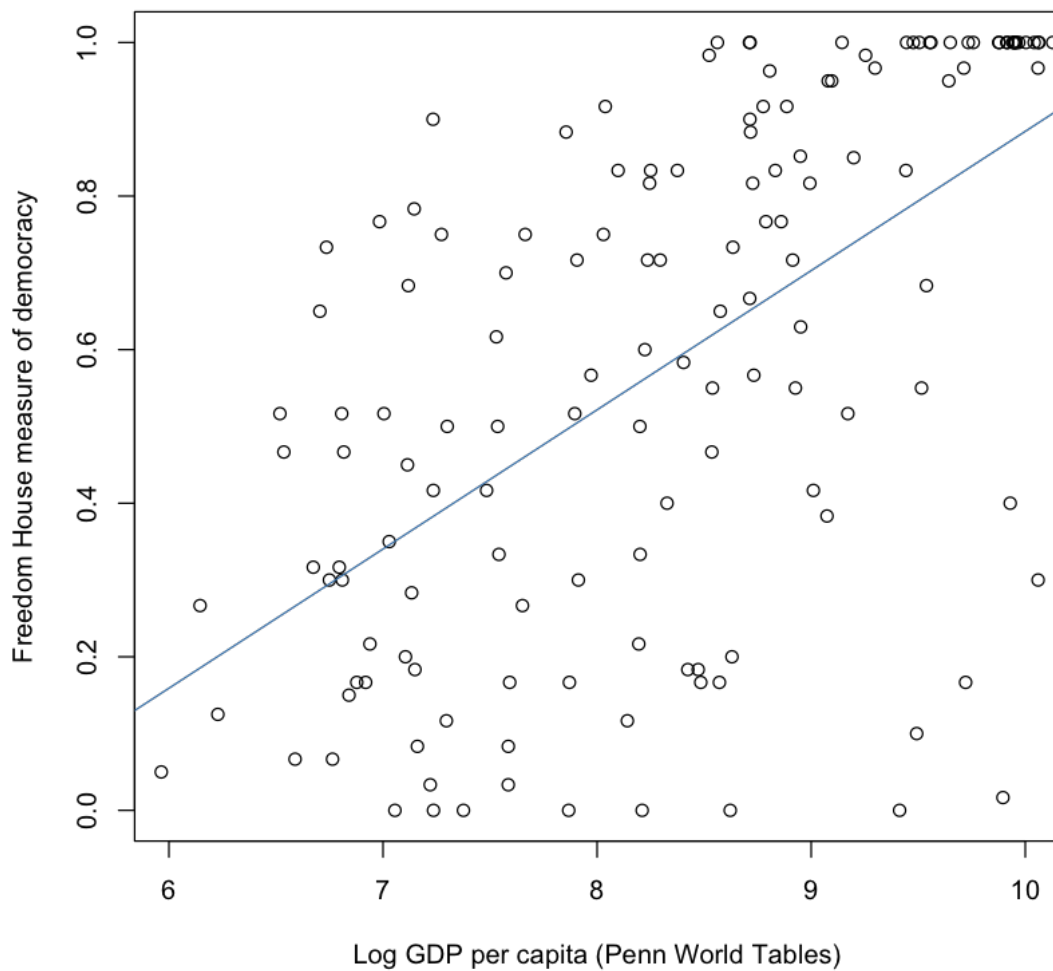
[12]: #### Figure 1
  →-----
# Load the data
library(readxl)
data_fig1 <- read_excel("AER.xls", sheet = 8)
fhpolrigaug <- data_fig1$fhpolrigaug
lrgdpch <- data_fig1$lrgdpch

# Linear Regression

```

```
fig1 <- lm(fhpolrigaug ~ lrgdpch)

# Plot figure 1
plot(fhpolrigaug ~ lrgdpch,
     xlab = "Log GDP per capita (Penn World Tables)",
     ylab = "Freedom House measure of democracy",
     xlim = c(6,10), ylim = c(0,1))
abline(fig1, col="steelblue")
```



```
[13]: ##### Figure 2
      ↪ -----
      # Load the data
      data_fig2 <- read_excel("AER.xls", sheet = 9)
```

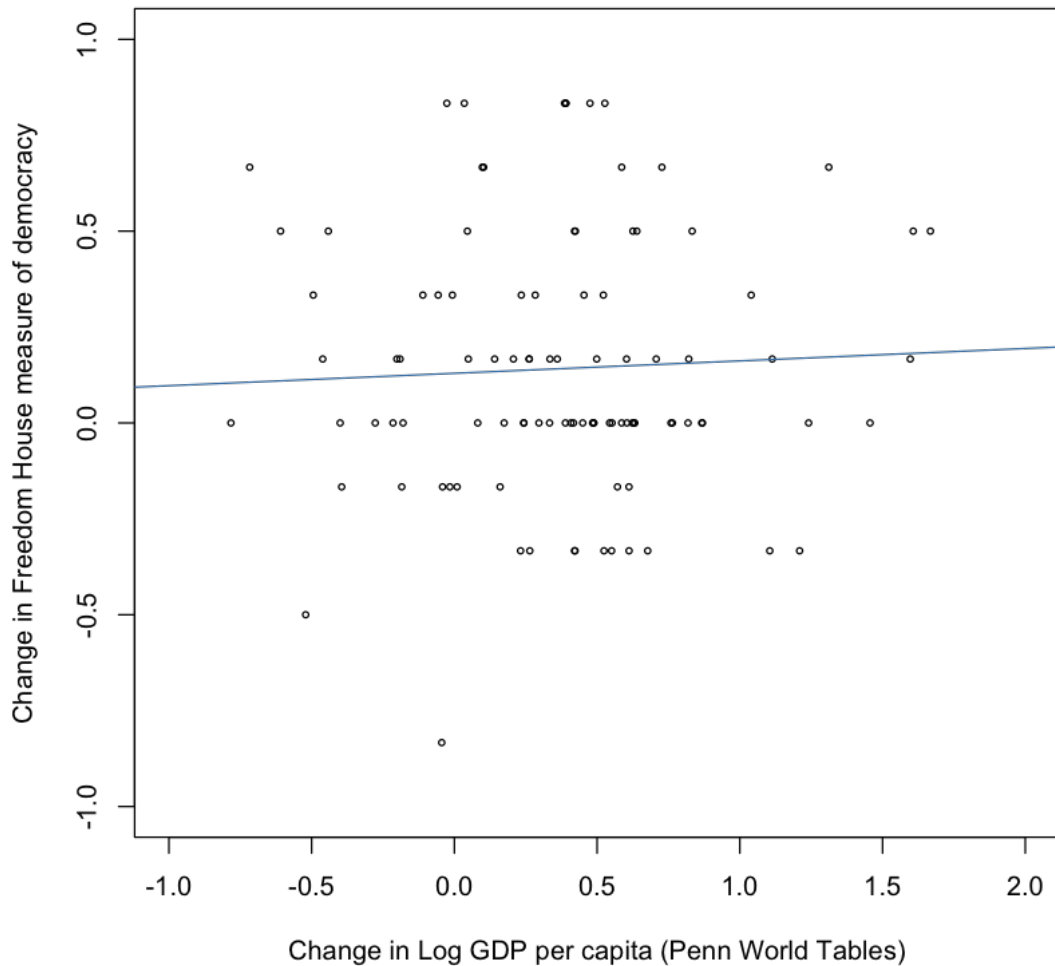
```

s5lrgdpch <- data_fig2$s5lrgdpch
s5fhpolrigaug <- data_fig2$s5fhpolrigaug

# Linear Regression
fig2 <- lm(s5fhpolrigaug ~ s5lrgdpch)

# Plot figure 2
plot(s5fhpolrigaug ~ s5lrgdpch,
     xlab = "Change in Log GDP per capita (Penn World Tables)",
     ylab = "Change in Freedom House measure of democracy",
     xlim = c(-1,2), ylim = c(-1,1),
     cex = 0.5)
abline(fig2, col="steelblue")

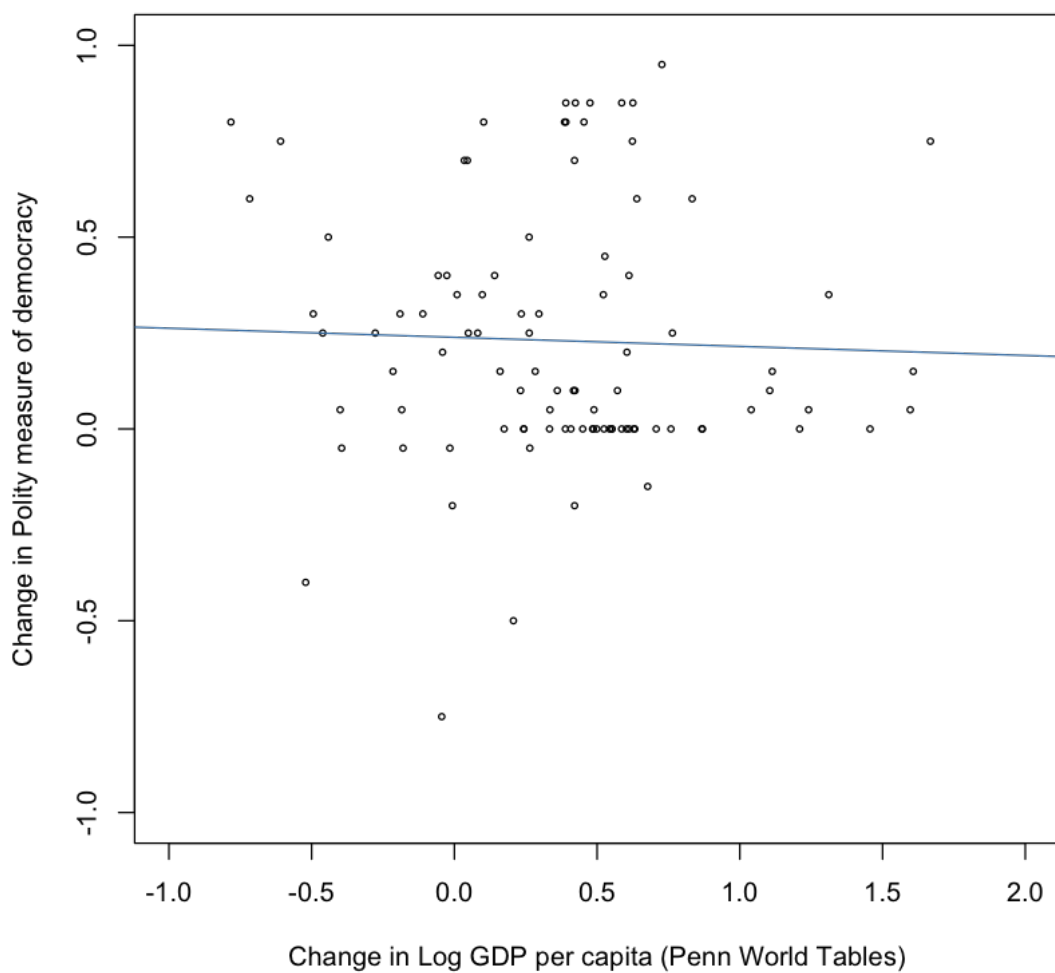
```



```
[14]: ##### Figure 3
      ↪-----
      # Load the data
      data_fig3 <- read_excel("AER.xls", sheet = 10)
      s5lrgdpch <- data_fig3$s5lrgdpch
      s5polity4 <- data_fig3$s5polity4

      # Linear Regression
      fig3 <- lm(s5polity4 ~ s5lrgdpch)

      # Plot figure 3
      plot(s5polity4 ~ s5lrgdpch,
           xlab = "Change in Log GDP per capita (Penn World Tables)",
           ylab = "Change in Polity measure of democracy",
           xlim = c(-1,2), ylim = c(-1,1),
           cex = 0.5)
      abline(fig3, col="steelblue")
```



```
[15]: ##### Figure 4
→ -----
# Load the data
data_fig4 <- read_excel("AER.xls", sheet = 11)
s2lrgdpmadalt <- data_fig4$s2lrgdpmadalt
s2polity4 <- data_fig4$s2polity4

# Linear Regression
fig4 <- lm(s2polity4 ~ s2lrgdpmadalt)

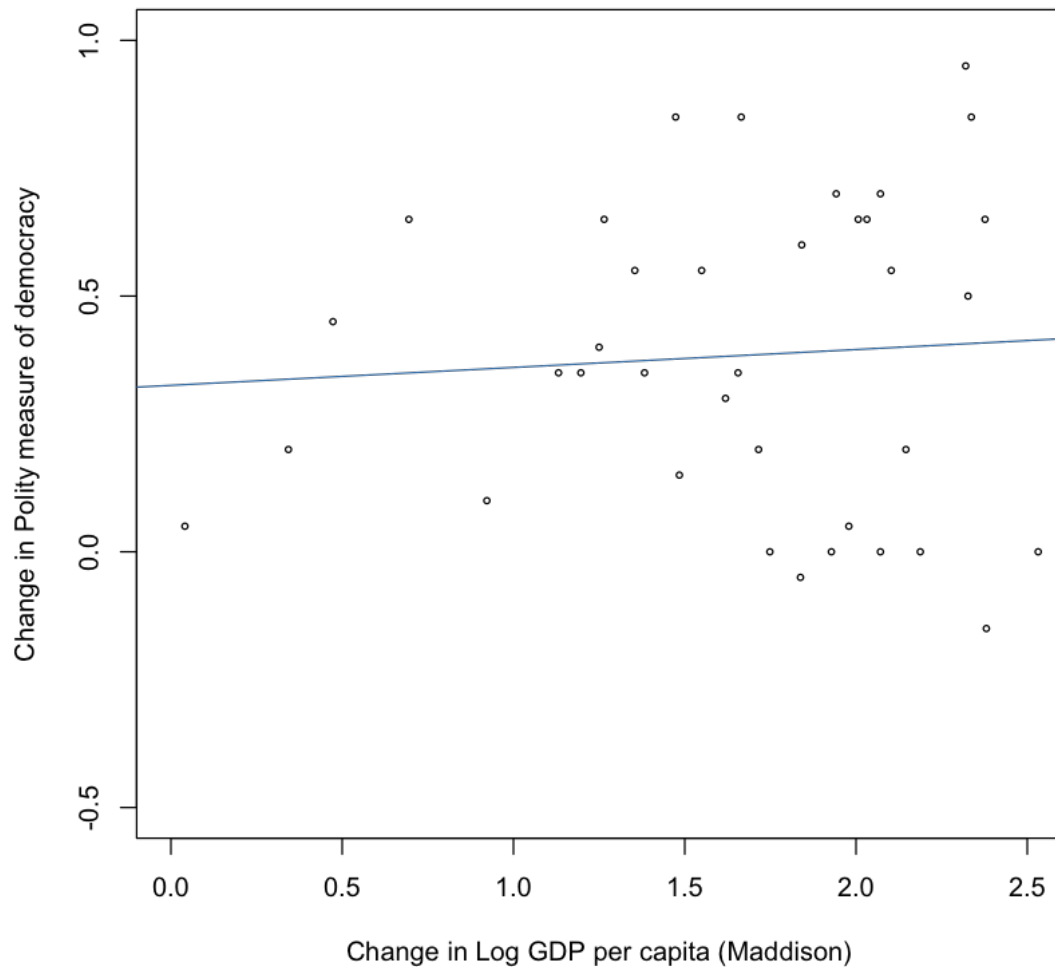
# Plot figure 4
plot(s2polity4 ~ s2lrgdpmadalt,
     xlab = "Change in Log GDP per capita (Maddison)",
```



```

ylab = "Change in Polity measure of democracy",
xlim = c(0,2.5), ylim = c(-0.5,1),
cex = 0.5)
abline(fig4, col="steelblue")

```



```

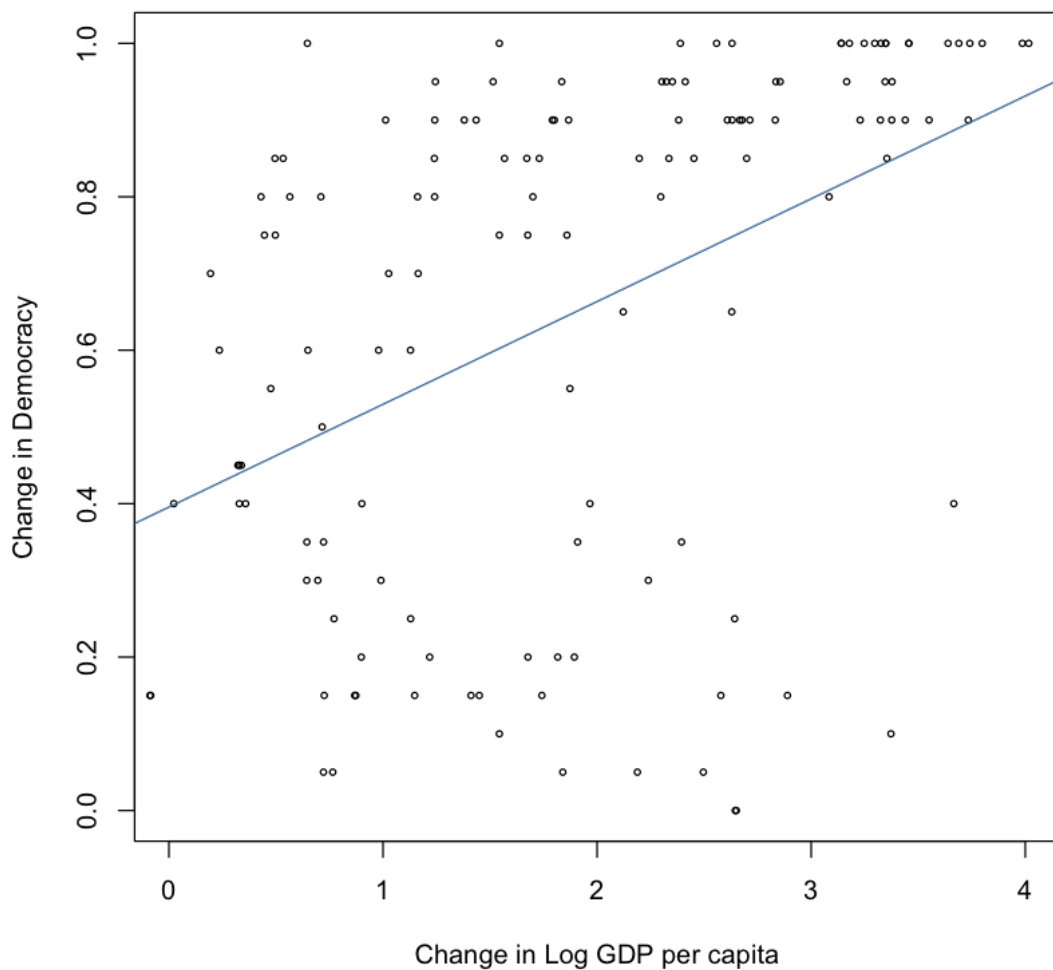
[16]: #### Figure 5
→ -----
# Load the data
data_fig5 <- read_excel("AER.xls", sheet = 12)
democ <- data_fig5$democ
growth <- data_fig5$growth

# Linear Regression

```

```
fig5 <- lm(democ ~ growth)

# Plot figure 5
plot(democ ~ growth,
     xlab = "Change in Log GDP per capita",
     ylab = "Change in Democracy",
     xlim = c(0,4), ylim = c(0,1),
     cex = 0.5)
abline(fig5, col="steelblue")
```



```
[17]: #### Figure 6
```

```
→ -----
# Load the data
```

```

data_fig6 <- read_excel("AER.xls", sheet = 13)
democresid <- data_fig6$democresid
growthresid <- data_fig6$growthresid

# Linear Regression
fig6 <- lm(democresid ~ growthresid)

# Plot figure 6
plot(democresid ~ growthresid,
     xlab = "Change in Log GDP per capita independent of historical factors",
     ylab = "Change in Democracy independent of historical factors",
     xlim = c(-2,3), ylim = c(-0.5,0.5),
     cex = 0.5)
abline(fig6, col="steelblue")
#### End -----

```

