Replication - Lagged Variables Without State Fixed Effects

Adopted from Gamm and Kousser (2021)

Table 1 with Lagged Variables and No State Fixed Effects

```
# print Lagged Table 1 Without State FEs
stargazer(lag3_mod1_se, lag3_mod2_se, lag3_mod3_se,
          lag3_mod4_se, lag3_mod5_se, lag3_mod6_se,
          header = F, type = "latex", digits = 2, style = "apsr",
          title = "Party Competition Does NOT Predict Human Capital and Infrastructure Spending, 1880-19
          column.labels = c("Education spending", "Health spending",
                            "Transportation spending"),
          column.separate = c(2, 2, 2),
          covariate.labels = c("Lagged education spending", "Lagged health spending",
                               "Lagged transportation spending",
                               "Legislative party competition",
                               "Electoral competition", "Democratic house",
                               "Democratic senate", "Democratic governor",
                               "Income per capita", "Foreign-born percentage",
                               "Black percentage", "Other nonwhite percentage",
                               "Urban population percentage"),
          omit = c("Constant", "year"),
          add.lines = list(c("State fixed effects",
                             "No", "No", "No",
                             "No", "No", "No"),
                           c("Year fixed effects",
                             "Yes", "Yes", "Yes",
                             "Yes", "Yes", "Yes"),
                           c("Observations", "258", "249", "187", "182", "234", "228"),
                           c("R-Squared", "0.55", "0.58", "0.40", "0.52", "0.62", "0.64"),
                           c("Adj. R-Squared", "0.54", "0.56", "0.38", "0.48", "0.61", "0.62")))
```

Table 1: Party Competition Does NOT Predict Human Capital and Infrastructure Spending, 1880-1980

	Education spending		Health spending		Transportation spending	
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged education spending	0.90***	0.80***				
	(0.11)	(0.09)				
Lagged health spending			0.77***	0.44***		
			(0.21)	(0.07)		
Lagged transportation spending					0.81***	0.76***
					(0.06)	(0.02)
Legislative party competition	0.11	−0.49	0.40**	0.20	0.02	0.20
	(0.48)	(0.59)	(0.17)	(0.14)	(0.15)	(0.77)
Electoral competition		−0.71		−0.16		−1.02
		(0.49)		(0.30)		(1.01)
Democratic house		5.73		24.72		−28.62
		(25.04)		(20.85)		(23.37)
Democratic senate		−68.20		−29.87*		29.44
		(45.15)		(16.57)		(31.45)
Democratic governor		−14.31		−12.49		−10.91
		(28.87)		(11.66)		(8.19)
Income per capita		0.01		0.01**		−0.003
		(0.01)		(0.003)		(0.01)
Foreign-born percentage		−5.13*		−0.47		−0.71
		(3.03)		(0.98)		(1.51)
Black percentage		−1.11		0.91		−1.13
		(1.81)		(1.00)		(0.91)
Other nonwhite percentage		4.36		1.77		5.12***
		(5.00)		(1.48)		(0.62)
Urban population percentage		0.74		0.22		0.21
		(0.93)		(0.36)		(0.53)
State fixed effects	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	258	249	187	182	234	228
R-Squared	0.55	0.58	0.40	0.52	0.62	0.64
Adj. R-Squared	0.54	0.56	0.38	0.48	0.61	0.62

*p < .1; **p < .05; ***p < .01

Table 2 with Lagged Variables and No State Fixed Effects

```r
# subset for overall Lag Table 2, Without State FEs
df_lag4 <- df %>%
  select(infantmortality, at_birth_life_expectancy, graduation_combined,
         illiteracy_proportional_30, Education_pc, HealthSewerSanitation_pc,
         leg_party_competition, Statewide_Competition, house_dem,
         senate_dem, gov_dem, CPI_per_capita_income, foreignborn_pct, black_pct,
         othernonwhite_pct, urban_pct, state, year, south)

# subset for Lag Table 2, Model 1
df_lag4_mod1 <- df_lag4 %>%
  mutate(lag_infantmortality = ifelse(year != 1880, lag(infantmortality), NA)) %>%
  filter(year >= 1930 & year < 2020)

# regress Lag Table 2, Model 1
lag4_mod1 <- plm(infantmortality ~ lag_infantmortality + HealthSewerSanitation_pc +
               CPI_per_capita_income + foreignborn_pct + black_pct +
               othernonwhite_pct + urban_pct, index = "year", data = df_lag4_mod1)
lag4_mod1_se <- coeftest(lag4_mod1, function(x) vcovHC(x, type = 'sss'))

# subset for Lag Table 2, Model 2
df_lag4_mod2 <- df_lag4 %>%
  filter(year >= 1880 & year <= 2010) %>%
  mutate(f3_at_birth_life_expectancy = dplyr::lead(at_birth_life_expectancy, 3)) %>%
  filter(year <= 1980)

# regress Lag Table 2, Model 2
lag4_mod2 <- plm(f3_at_birth_life_expectancy ~ at_birth_life_expectancy +
               HealthSewerSanitation_pc + CPI_per_capita_income +
               foreignborn_pct + black_pct + othernonwhite_pct +
               urban_pct, index = "year", data = df_lag4_mod2)
lag4_mod2_se <- coeftest(lag4_mod2, function(x) vcovHC(x, type = 'sss'))

# subset for Lag Table 2, Models 3 and 4
df_lag4_mod3 <- df_lag4 %>%
  filter(year >= 1880 & year <= 2010) %>%
  mutate(lag_graduation_combined = ifelse(year != 1880, lag(graduation_combined), NA)) %>%
  mutate(illiteracy_20 = lag(illiteracy_proportional_30))

# regress Lag Table 2, Model 3
lag4_mod3 <- plm(graduation_combined ~ lag_graduation_combined + Education_pc +
               CPI_per_capita_income + foreignborn_pct + black_pct +
               othernonwhite_pct + urban_pct + south,
             index = "year", data = df_lag4_mod3)
lag4_mod3_se <- coeftest(lag4_mod3, function(x) vcovHC(x, type = 'sss'))

# regress Lag Table 2, Model 4
# note: the lagged variable is the illiteracy rate 20 years later
lag4_mod4 <- plm(illiteracy_proportional_30 ~ illiteracy_20 + Education_pc +
               CPI_per_capita_income + foreignborn_pct + black_pct +
               othernonwhite_pct + urban_pct + south,
             index = "year", data = df_lag4_mod3)
```

```r
lag4_mod4_se <- coeftest(lag4_mod4, function(x) vcovHC(x, type = 'sss'))


# print Lagged Table 2, Without State FEs
stargazer(lag4_mod1_se, lag4_mod2_se, lag4_mod3_se, lag4_mod4_se,
          header = F, type = "latex", font.size = "tiny", style = "apsr",
          title = "Spending Levels Do NOT Predict Development, 1880-2010",
          column.labels = c("Infant mortality",
                            "Life expectancy (30 years later)",
                            "High school completion",
                            "Illiteracy rate (30 years later)"),
          covariate.labels = c("Lagged infant mortality", "Current life expectancy",
                              "Health spending per capita",
                              "Lagged high school completion", "Illiteracy (20 years later)",
                              "Education spending per capita", "Income per capita",
                              "Foreign-born percentage", "Black percentage",
                              "Other nonwhite percentage", "Urban population percentage"),
          omit = c("Constant", "south", "year"),
          add.lines = list(c("State fixed effects", "No", "No", "No", "No"),
                          c("Year fixed effects", "Yes", "Yes", "Yes", "Yes"),
                          c("Observations", "215", "181", "336", "134"),
                          c("R-Squared", "0.86", "0.70", "0.84", "0.68"),
                          c("Adjusted R-Squared", "0.85", "0.68", "0.84", "0.66")))
```

Table 2: Spending Levels Do NOT Predict Development, 1880-2010

	Infant mortality (1)	Life expectancy (30 years later) (2)	High school completion (3)	Illiteracy rate (30 years later) (4)
Lagged infant mortality	0.563*** (0.056)			
Current life expectancy		0.528*** (0.143)		
Health spending per capita	−0.0004 (0.002)	0.002*** (0.001)		
Lagged high school completion			0.916*** (0.038)	
Illiteracy (20 years later)				0.781*** (0.187)
Education spending per capita			0.002** (0.001)	0.0002 (0.0001)
Income per capita	0.0002* (0.0001)	0.0001 (0.0001)	0.00002 (0.0001)	−0.00002 (0.00002)
Foreign-born percentage	−0.245** (0.112)	0.071 (0.050)	−0.019 (0.036)	0.015*** (0.002)
Black percentage	0.157*** (0.040)	−0.038* (0.022)	−0.053*** (0.020)	0.001 (0.004)
Other nonwhite percentage	0.265* (0.149)	0.055*** (0.018)	−0.168** (0.073)	0.037*** (0.007)
Urban population percentage	−0.060*** (0.016)	−0.009 (0.009)	−0.002 (0.023)	−0.009*** (0.001)
State fixed effects	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes
Observations	215	181	336	134
R-Squared	0.86	0.70	0.84	0.68
Adjusted R-Squared	0.85	0.68	0.84	0.66

*p < .1; **p < .05; ***p < .01