

# FOREIGN AID, INSTITUTION QUALITY, AND GROWTH

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EE 462 Development Macroeconomics  
Semester 1/2019

Reference: Young, A.T., and Sheehan, K.M. (2014). Foreign aid, institution quality, and growth. *European Journal of Political Economy*, 36, 195-208.

# Summary

- Objective:
  - to investigate the linkage between foreign aid, institution quality, and growth
- Method:
  - Use a dynamic panel data model (116 countries, 8 5-yr data from 1970-2010) to estimate the impact of ODA on institutional quality (economic & political)
  - Then, estimate the impact of ODA on growth by controlling for institutional quality
- Results:
  - Aid flows are negatively associated with a recipient's legal system, property rights, and its trade openness.
  - After controlling for institutional quality, aid flows are not significantly related to growth.

# Literature

- Aid & growth
  - Optimistic view
  - Pessimistic view
- Institutions & growth
  - Economic freedom (e.g. private property rights)
  - Political freedom (e.g. check and balances)
- Aid & Institutional quality

# Institutional Quality

1. Polity democracy score
2. Checks and balances measure
3. Economic Freedom of the World (EFW)
4. 5 component area scores of EFW
5. Political rights
6. Civil liberties

**Table 1**  
Summary variables included in regression analyses.

Variable	Description	Source	Mean	Stand. dev
DEMOC	Polity IV democracy ranking	Polity IV	3.217	3.697
FREEDOM	Economic Freedom of the World index	Gwartney et al. (2013)	5.739	1.262
CHECKS	Index for number of checks and balances	Keefer and Stasavage (2003)	2.022	1.517
ODA	Official development assistance to GDP ratio	DAC	0.016	0.025
POL_RIGHTS	Index of political rights	Freedom House	4.357	2.015
CIV_LIBS	Index of civil liberties	Freedom House	4.282	1.643
SIZE_GOV	EFW area 1: size of government	Gwartney et al. (2013)	6.029	1.613
PROP_RIGHTS	EFW area 2: legal structure & property rights	Gwartney et al. (2013)	4.872	1.691
MONEY	EFW area 3: access to sound money	Gwartney et al. (2013)	6.396	2.252
TRADE	EFW area 4: freedom to trade internationally	Gwartney et al. (2013)	5.351	2.201
REGULATION	EFW area 5: regulations of credit, labor, & business	Gwartney et al. (2013)	5.855	1.196
OIL	Oil production as a share of GDP	British Petroleum (2011)	0.000	0.001
(OIL when > 0)			0.001	0.001
SHOCKS_POS	Mean value of positive terms of trade growth rates	UN & IMF	0.066	0.118
SHOCKS_NEG	Mean value of negative terms of trade growth rates	UN & IMF	-0.045	0.086
AG_SHARE	Agricultural share of GDP expressed as a percentage	World Develop. Indicators	21.560	15.658
LIFE_EXPECT	Life expectancy at birth	World Develop. Indicators	61.211	10.992
RGDP_PC	Real per capita GDP, 2005 US\$	Penn World Tables 8.0	8114.560	27,446.530
LANGUAGE	Linguistic fractionalization	MacroDataGuide	0.450	0.289
ETHNIC	Ethnic fractionalization	MacroDataGuide	0.501	0.245
Investment/GDP	Gross capital formation as a share of GDP	Penn World Tables 8.0	0.198	0.118
Pop. growth	Population growth rate (over 5-year periods)	Penn World Tables 8.0	0.105	0.073
Urb. pop. share	Urban population share expressed as a percentage	World Develop. Indicators	45.227	23.424
Prim. enroll.	Primary school enrollment rate expressed as a percentage	World Develop. Indicators	94.409	25.668
Second enroll.	Secondary school enrollment rate expressed as a percentage	World Develop. Indicators	50.075	30.243

# Estimation of relationship between aid and institutional quality

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- $INST_t = \beta_0 + \beta_1 ODA_{t-1;t} + \beta_2 INST_{t-1} + \beta_3 X_{t-1}$
- $INST_t - INST_{t-1} = \beta_0 + \beta_1 ODA_{t-1;t} + (\beta_2 - 1)INST_{t-1} + \beta_3 X_{t-1}$

# Aid's Effect on Institution's Quality

Table 2

OLS period fixed effects regressions of baseline institutional variables on foreign aid.

	(1) Dependent variable DEMOC-DEMOC(-1)	(2) CHECKS-CHECKS(-1)	(3) FREEDOM-FREEDOM(-1)
ODA	8.507** (3.865)	2.851 (2.101)	0.131 (2.468)
OIL	-20.225 (61.478)	-26.949 (37.283)	9.249 (85.099)
SHOCKS_NEG	3.442*** (1.109)	0.484 (0.796)	-0.780 (0.481)
SHOCKS_POS	2.748*** (1.053)	-0.013 (0.517)	-0.650 (0.441)
LANGUAGE	0.447 (0.398)	0.573* (0.311)	0.014 (0.100)
ETHNIC	-0.738* (0.420)	-0.292 (0.300)	-0.090 (0.129)
RPCGROWTH	-0.008 (0.278)	0.069 (0.148)	0.542*** (0.133)
DONORSSI	-0.074 (0.202)	-0.251 (0.173)	0.103* (0.056)
INST(-1)	-0.231*** (0.039)	-0.535*** (0.054)	-0.203*** (0.028)
Redundant fixed effects	5.989***	4.303***	13.513***
R <sup>2</sup>	0.165	0.305	0.296
Countries	111	116	81
Observations	802	732	545

Notes: \*, \*\*, and \*\*\* denote statistical significance at the 10, 5, and 1% levels, respectively. Standard errors are clustered by country and are reported in parentheses. Constants and regional dummy variables are included in all regressions (though not reported). "Redundant fixed effects" refer to F-tests are for the null hypothesis that the period fixed effects are jointly insignificant. The panel consists of 5-year periods and the notation "(-1)" denotes a 5-year lag.

**Table 3**

2SLS period fixed effects regressions of baseline institutional variables on foreign aid.

	(1) Dependent variable DEMOC-DEMOC(-1)	(2) CHECKS-CHECKS(-1)	(3) FREEDOM-FREEDOM(-1)
ODA	-13.461 (12.599)	-15.028* (8.921)	-19.111*** (7.014)
OIL	-137.515 (101.222)	-137.331** (69.548)	-97.015 (115.057)
SHOCKS_NEG	2.818** (1.179)	0.051 (0.939)	-0.716 (0.610)
SHOCKS_POS	2.529** (1.257)	-0.133 (0.608)	-0.636 (0.617)
LANGUAGE	0.019 (0.371)	0.427 (0.333)	0.003 (0.150)
ETHNIC	-0.419 (0.442)	-0.083 (0.349)	0.062 (0.210)
RPCGROWTH	-0.147 (0.362)	0.047 (0.185)	0.436*** (0.167)
DONORSSI	0.085 (0.216)	-0.115 (0.156)	0.221*** (0.066)
INST(-1)	-0.257*** (0.042)	-0.575*** (0.058)	-0.284*** (0.039)
F-stat (first stage)	8.924***	9.278***	13.465***
J-stat	0.165	1.505	0.731
J-stat p-value	0.684	0.220	0.392
Countries	107	112	79
Observations	676	629	481

**Table 4**  
2SLS period fixed effects regressions of additional institutional variables on foreign aid.

Dependent variable (INST-INST(-1))	(1) Coefficient on ODA	(2) J-stat	(3) J-stat p-value	(4) F stat (first stage)
POL_RIGHTS	11.122 (7.559)	1.290	0.256	8.742***
CIV_LIBS	15.962** (6.436)	4.151**	0.042	9.776***
SIZE_GOV	1.764 (8.034)	1.274	0.259	17.409***
PROP_RIGHTS	-55.024*** (19.582)	0.379	0.538	11.307***
MONEY	-12.475 (12.864)	1.061	0.303	15.462***
TRADE	-38.713*** (13.358)	0.421	0.517	13.762***
REGULATION	-8.535 (5.476)	0.017	0.896	13.741***

Notes: \*, \*\*, and \*\*\* denote statistical significance at the 10, 5, and 1% levels, respectively. Standard errors are clustered by country and are reported in parentheses. Constants and regional dummy variables are included in all regressions (though not reported). Lagged values of AG\_SHARE and LIFE\_EXPECT are employed as instruments. The panel consists of 5-year periods and the notation “(-1)” denotes a 5-year lag.

# Growth regressions including affected institutional measures

**Table 5**  
Regressions of real GDP per capita growth on institutional variables, initial income, and other controls.

	(1) Dependent variable (per cap. real GDP growth)	(2)	(3)	(4)	(5)
	Fixed period effects	Fixed country effects	Fixed country effects	Fixed country effects; 2SLS	Fixed country effects; 2SLS (just identified)
DEMOC	0.003 (0.004)	0.005 (0.007)	0.003 (0.006)	0.009 (0.044)	-0.005 (0.038)
CHECKS	0.005 (0.008)	0.011 (0.016)	0.018 (0.013)	-0.006 (0.130)	0.031 (0.141)
FREEDOM	0.039** (0.017)	0.039* (0.023)		0.079** (0.040)	0.090*** (0.030)
SIZE_GOV			0.011 (0.015)		
PROP_RIGHTS			0.012 (0.016)		
MONEY			0.003 (0.009)		
TRADE			0.017 (0.014)		
REGULATION(-1)			-0.009 (0.023)		
Investment/GDP	0.165 (0.194)	0.110 (0.188)	0.309 (0.408)	-0.058 (0.447)	-0.173 (0.443)
Population growth	-0.894*** (0.336)	-0.641 (0.458)	-0.910*** (0.212)	-0.496 (0.545)	-0.428 (0.582)
Init. real GDP per cap.	-0.139*** (0.031)	-0.518*** (0.072)	-0.411*** (0.061)	-0.409*** (0.058)	-0.417*** (0.057)
Urban pop. share	0.003*** (0.001)	0.004 (0.004)	0.009* (0.005)		
Primary enrollment	-0.000 (0.000)	-0.000 (0.000)	-0.001 (0.001)		
Secondary enrollment	0.001 (0.001)	0.001 (0.002)	-0.002 (0.002)		
ODA	-4.594*** (1.074)	-4.823* (2.893)	-3.569 (3.772)	1.423 (2.675)	0.971 (1.943)
F-stat (red. fix. effects)	1.158	2.068***	1.985***		
J-stat				0.055	
J-stat p-value				0.815	
R <sup>2</sup>	0.177	0.451	0.492		
Countries	76	76	73	78	78
Observations	366	366	300	437	437

Table 6

First stage regressions from 2SLS growth regressions.

	(1) DEMOC	(2) CHECKS	(3) FREEDOM	(4) ODA
ODA (lag)	116.304*** (28.335)	31.800*** (10.334)	40.687* (22.161)	0.793*** (0.081)
ODA <sup>2</sup> (lag)	-161.2655 (155.163)	-51.821 (65.429)	-164.004* (93.952)	-0.288 (0.446)
ODA * POLITICAL_RIGHTS (lag)	-11.592*** (3.167)	-2.881** (1.287)	-5.280*** (1.404)	0.010 (0.011)
ODA * population (lag)	0.140 (0.360)	0.064 (0.222)	0.893*** (0.242)	-0.007*** (0.002)
ODA * (real GDP) (lag)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Investment/GDP	5.808*** (2.248)	2.024** (0.809)	3.563*** (1.036)	0.067*** (0.014)
Population growth	-3.738** (1.528)	-1.822*** (0.670)	-3.599** (1.505)	0.006 (0.009)
Initial real GDP per cap.	1.599*** (0.503)	0.459** (0.223)	1.283*** (0.284)	-0.004*** (0.001)
F-stat (Instruments)	6.068***	3.204***	5.950***	170.276***
R <sup>2</sup>	0.710	0.544	0.621	0.698

Notes: \*, \*\*, and \*\*\* denote statistical significance at the 10, 5, and 1% levels, respectively. Standard errors are clustered by country and are reported in parentheses. Constants are included in all regressions (though not reported). Country fixed effects are also included in all regressions. The F-statistic is associated with the test of joint insignificance of ODA<sup>2</sup>, ODA \* POLITICAL\_RIGHTS, ODA \* population, and ODA \* (real GDP). The panel consists of 5-year periods and the notation “(-1)” denotes a 5-year lag.

**Table 7**  
Regressions of real GDP per capita growth on separate areas of economic freedom and other controls.

	(1) Dependent variable (Per cap. real GDP growth)	(2)	(3)	(4)	(5)	(6)	(7)
	Fixed period effects	Fixed country effects	Fixed country effects; 2SLS	Fixed country effects; 2SLS	Fixed country effects; 2SLS	Fixed country effects; 2SLS	Fixed country effects; 2SLS
DEMOC	−0.004 (0.004)	0.003 (0.006)	0.000 (0.009)	−0.000 (0.013)	0.007* (0.004)	0.002 (0.007)	0.010* (0.005)
CHECKS	0.007 (0.008)	0.018 (0.013)	−0.007 (0.017)	0.002 (0.022)	0.010 (0.012)	−0.003 (0.018)	0.009 (0.012)
SIZE_GOV	0.005 (0.010)	0.011 (0.015)	0.139** (0.067)				
PROP_RIGHTS	0.024** (0.011)	0.012 (0.016)		0.240 (0.296)			
MONEY	0.006 (0.008)	0.003 (0.009)			0.033** (0.014)		
TRADE	0.010 (0.012)	0.017 (0.014)				0.065* (0.037)	
REGULATION	−0.011 (0.016)	−0.009 (0.023)					0.039 (0.080)
Investment/GDP	0.106 (0.179)	0.309 (0.408)	−0.211 (0.336)	−0.210 (0.830)	0.075 (0.174)	−0.230 (0.429)	0.119 (0.295)
Population growth	−0.920*** (0.269)	−0.910*** (0.212)	−0.358 (0.679)	−0.692 (1.123)	−0.634 (0.420)	−0.560 (0.375)	−0.670 (0.411)
Init. real GDP per cap.	−0.098*** (0.026)	−0.411*** (0.061)	−0.400*** (0.057)	−0.505*** (0.178)	−0.426*** (0.057)	−0.425*** (0.066)	−0.404*** (0.065)
Urban pop. share	0.002*** (0.008)	0.009* (0.005)					
Primary enrollment	−0.001** (0.006)	−0.001 (0.001)					
Secondary enrollment	0.001 (0.001)	−0.002 (0.002)					
ODA	−3.564*** (1.226)	−3.569 (3.772)	−2.291 (1.636)	1.912 (4.224)	−2.042 (1.499)	−0.801 (1.571)	−2.276 (1.658)
F-stat (red. fix. effects)	1.542	1.985***					
F-stat (first stage)			0.874	0.460	10.132***	4.224***	4.081***
J-stat			0.016	0.336	0.606	0.138	2.512
J-stat p-values			0.899	0.562	0.436	0.711	0.473
R <sup>2</sup>	0.179	0.492					
Countries	73	73	78	78	78	77	78
Observations	300	300	440	417	445	406	436