



The Political Economy of Foreign Aid

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IVs in the aid effectiveness literature

- Large literature on whether and to what extent aid affects growth (or any other outcome)
- No robust results across studies (Doucouliagos 2019)
- Typical set-up:
- Second-stage regression

$$Growth_{i,t} = \beta_1 Aid_{i,t-1} (+\beta_2 Aid_{i,t-1}^2) + \beta_3 X_{i,t} + \beta_4 \eta_i + \beta_5 \tau_t + \varepsilon_{i,t}$$

- First-stage regression
- $Aid_{i,t-1} = \beta_1 IV_{i,t-1} + \beta_2 X_{i,t} + \beta_3 \eta_i + \beta_4 \tau_t + \varepsilon_{i,t}$
- Four- or five year averages, few controls, around 350 observations



IVs in the aid effectiveness literature

- Identification of a causal effect of aid?
 - Population-based instruments
 - Rajan and Subramanian (2008)

$$\begin{aligned} A_{drt}/GDP_{rt} = & \beta_1' Y_{drt} + v_{drt} = \beta_0 + \beta_1 COMLANG_{dr} \\ & + \beta_2 CURCOL_{dr} + \beta_3 COMCOL_{dr} \\ & + \beta_4 COMCOLUK_{dr} + \beta_5 COMCOLFRA_{dr} \\ & + \beta_6 COMCOLSPA_{dr} + \beta_7 COMCOLPOR_{dr} \\ & + \beta_8 \log(POP_d/POP_r) + \beta_9 \log(POP_d/POP_r) \\ & \times COMCOL_{dr} + \beta_{10} \log(POP_d/POP_r) \\ & \times COMCOLUK_{dr} + \beta_{11} \log(POP_d/POP_r) \\ & \times COMCOLFRA_{dr} + \beta_{12} \log(POP_d/POP_r) \\ & \times COMCOLSPA_{dr} + \beta_{13} \log(POP_d/POP_r) \\ & \times COMCOLPOR_{dr} + v_{drt}, \end{aligned}$$

standard errors in
parentheses



But: identification rests on population size

Dependent Variable $N = 78$	Growth (1)	Growth (2)	Growth (3)
Aid/GDP	0.096 (0.070)	0.911 (4.083)	0.078 (0.066)
Initial Log Population		1.604 (7.923)	
... same controls as in R&S Table 4, column 2			
Excluded Instrument	\bar{a}_r	\bar{a}_r	$\ln(\text{pop})$
Cragg-Donald F stat [†]	31.63	0.13	36.30
Kleibergen-Paap F stat [†]	36.13	0.07	32.14
Kleibergen-Paap LM test (p-val)	<0.01	0.77	<0.01



IVs in the aid effectiveness literature

- Identification of a causal effect of aid?
 - Population-based instruments
 - “black-box”-GMM
 - “Political-interest”-based instruments: require “homogeneity assumption”
 - What else?



This talk (and the papers it is based on)

- **Aid Allocation Literature: Politics determine aid flows**
 - **UNSC membership** (Kuziemko and Werker 2006, Dreher, Sturm, Vreeland 2009; Vreeland, Dreher 2014)
 - **Membership on Executive Boards of International Organizations** (Kaja and Werker 2010; Dreher, Lang, Richert 2019)
 - **Within countries: birthregions, ethnic regions** (Dreher, Fuchs, Hodler, Parks, Raschky, Tierney 2019; Bommer, Dreher, Perez-Alvarez 2019)
- **Is “political aid” as effective as other aid?** (Dreher, Eichenauer, Gehring 2018; Dreher, Fuchs, Hodler, Parks, Raschky, Tierney 2019)
- **New instruments based on interacted variables**
 - **Government fractionalization** (Dreher and Langlotz 2019)
 - **IDA income threshold** (Dreher and Lohmann 2016)
 - **Availability of aid** (Dreher, Fuchs, Parks, Strange, Tierney 2017; Dreher, Fuchs, Hodler, Parks, Raschky, Tierney 2019)



United Nations Security Council (UNSC)

- Yemen – UNSC member 1990-1991
 - Voted against Desert Storm – U.S.-Secretary of State James Baker was overheard declaring to the Yemeni ambassador that it was "the most expensive vote you have ever cast."
- President Trump, December 2017
 - "All of these nations that take our money and then they vote against us at the Security Council ... they take hundreds of millions of dollars and even billions of dollars and then they vote against us." "Well, we're watching those votes." "Let them vote against us; we'll save a lot. We don't care."
 - "foreign aid simply represents one of the very few tools of foreign policy, and foreign policy ... is simply "trying to get some country to do what you want. That's all it is.""

- Interview with Madeleine Albright, August 29, 2012 (Vreeland and Dreher 2014: 19)

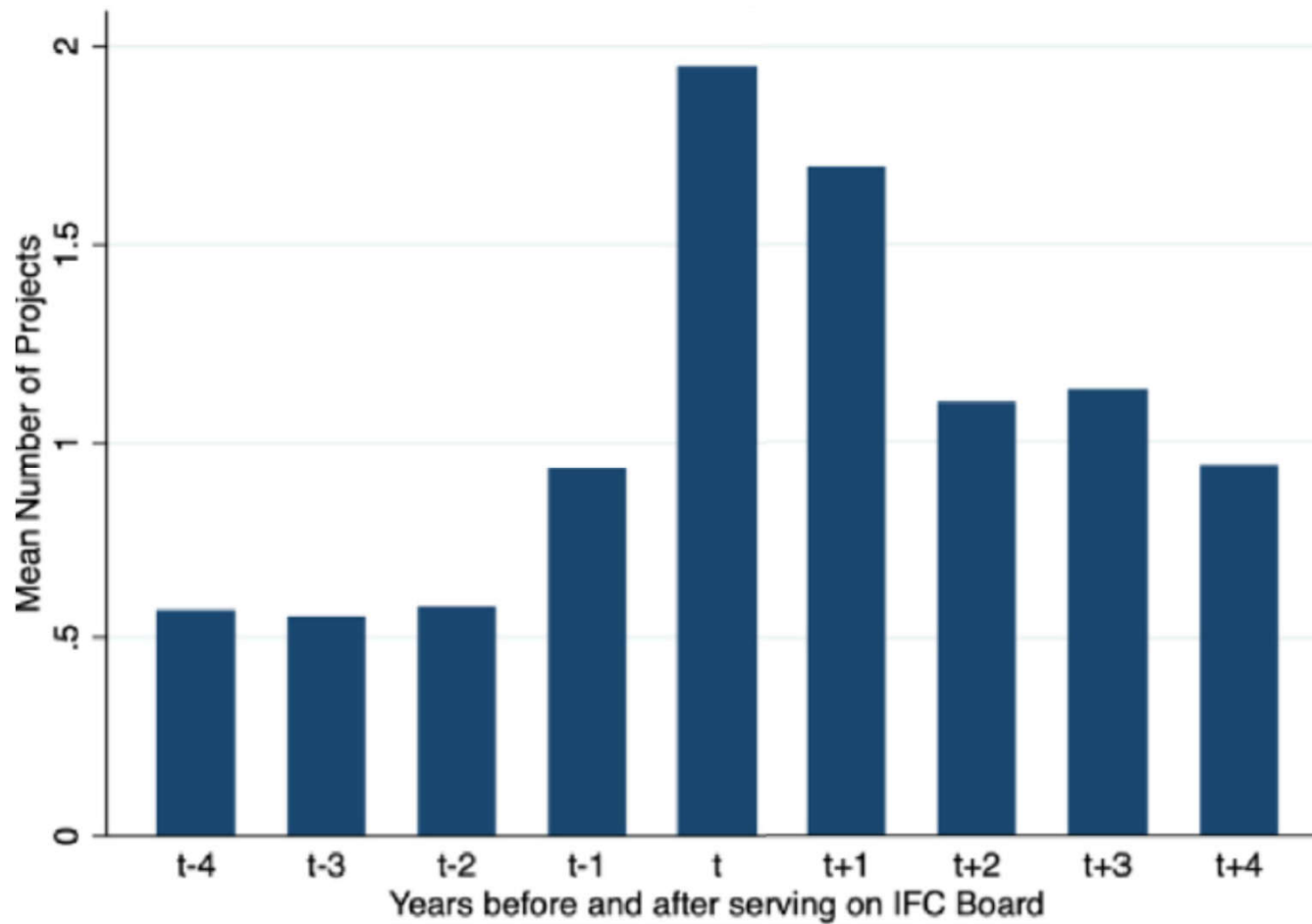


Do political considerations play a part in who the Bank lends to?

“It is true that during the Cold War years aid was politically motivated. Now however aid is being delivered to countries most in need, and to those who show they are determined to use it well.” (World Bank, FAQ, www.worldbank.org)



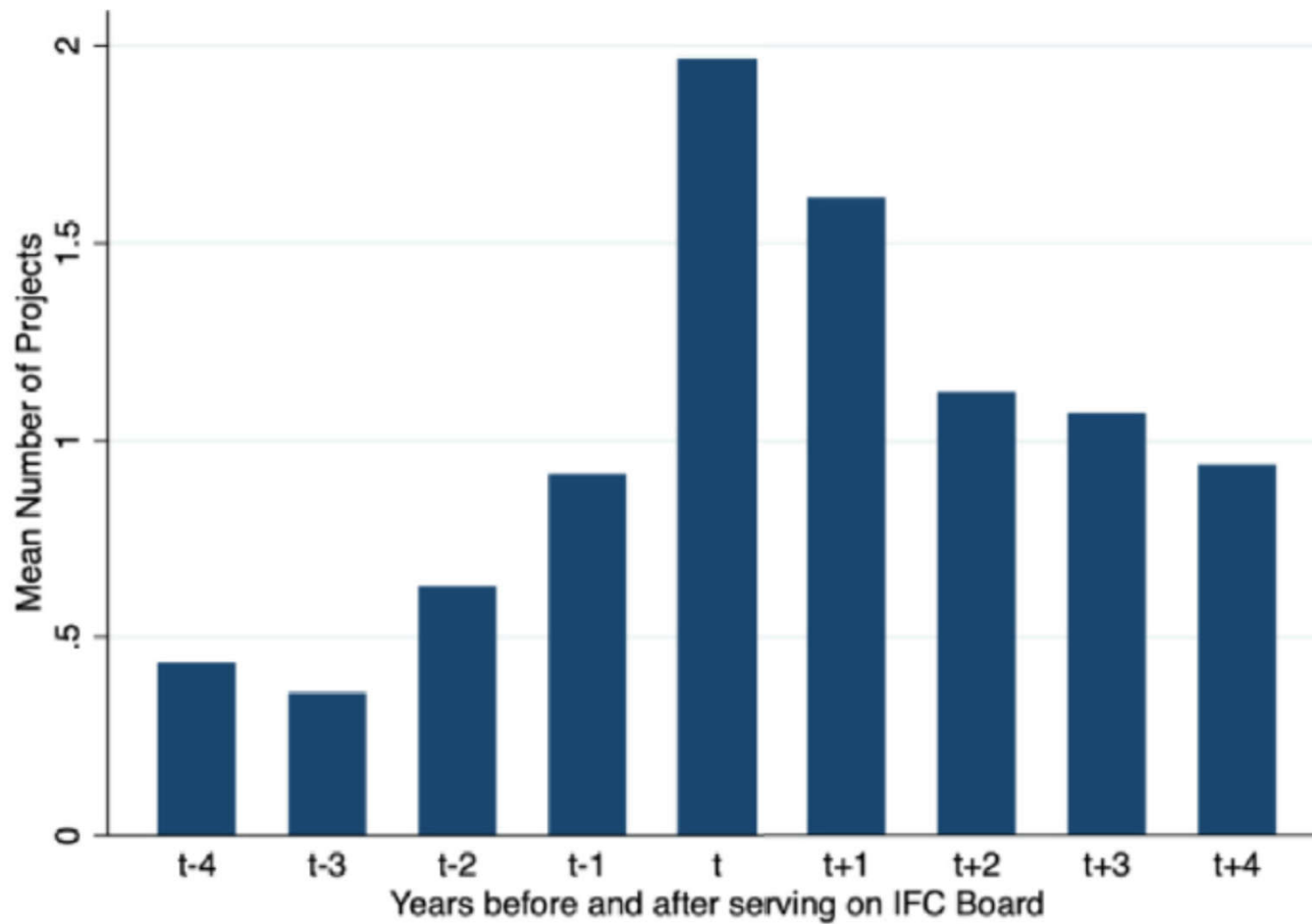
IFC Loans for Recipient Countries by Board Membership



Source: Dreher, Lang, Richert (2019, JDE)



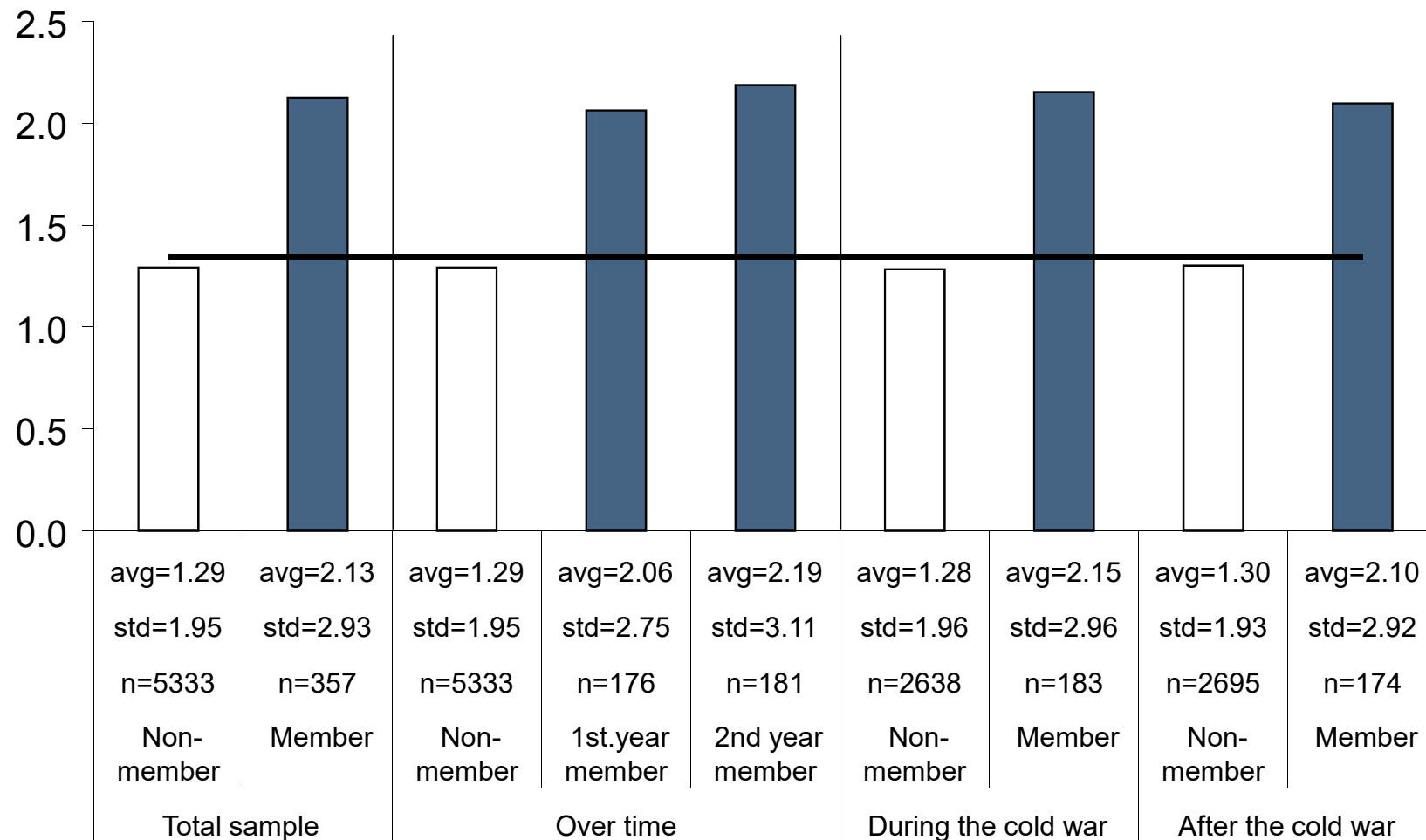
IFC Loans for “Sponsor” Countries by Board Membership



Source: Dreher, Lang, Richert (2019, JDE)



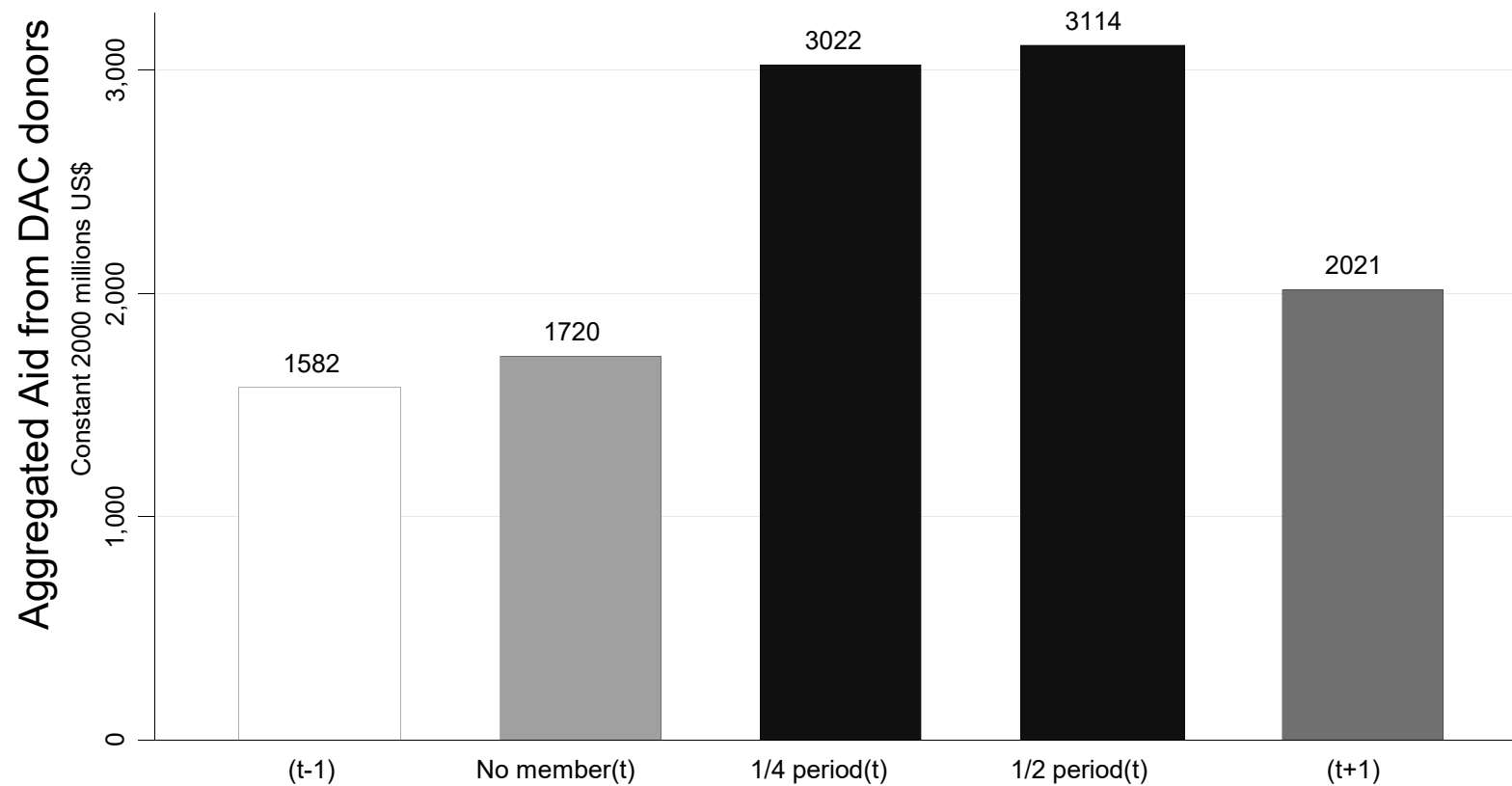
Average number of new World Bank projects



Source: Dreher, Sturm, Vreeland (2009, JDE)



Aid commitments and UNSC membership



4-year periods, 1959-2009, excluding Russia and China

Source: Dreher, Eichenauer, Gehring (2018, WBER)



Aid allocation within countries



- Source: Acemoglu and Robinson (blog)
- “Where do you think this fancy school is located?”
- “It is a small village, Yoni in Bombali district [in Sierra Leone]. It was recently built there by China Aid.”
- “Why would anyone want to build a wonderful school in the middle of what Africans call 'the bush'?”
- “Here is a hint: Yoni is the home village of Sierra Leone's president, Ernest Bai Koroma.”



Does “aid“ favor birth or ethnic regions?

- Do regions with connections to the leader of a country receive more aid from China or the World Bank?
 - birthregions
 - ethnic regions
- Focus on administrative regions at the first and second subnational level (ADM1 and ADM2)
 - There are 709 ADM1 regions and 5,835 ADM2 regions in “our” 47 African countries
 - Dataset includes more than 1,686 development projects to 50 African countries from 2000-2012, amounting to more than US\$ 84.8 billion
- Alternative units of observation: Ethnographic regions
 - GREG database provides geo-referenced information on ethnic groups using GIS



Leaders' birth region and “aid”, ADM1

	(1)	(2)	(3)	(4)	(5)
	China	China	China	WB	WB
Birthregion	0.688**	1.082***	1.246***	0.090	-0.126
	(0.323)	(0.369)	(0.400)	(0.136)	(0.160)
Prebirth			0.428		
			(0.900)		
Postbirth (1 year)			1.395		
			(0.853)		
Postbirth (2 years)			-0.478		
			(0.502)		
Country-year FE	yes	yes	yes	yes	yes
Region FE	no	yes	yes	no	yes
Controls	yes	no	no	yes	no
R-squared	0.398	0.296	0.297	0.519	0.408
Observations	8,327	8,327	8,327	8,508	8,508
Number of regions	709	709	709	709	709

Note: Standard errors clustered at the leader level

Chinese total aid flows increase by 250% at ADM1

Source: Dreher, Fuchs, Hodler, Parks, Raschky, Tierney (2019, JDE)



Leaders' ethnic region and “aid”

	(1)	(2)	(3)	(4)
	China	China	WB	WB
Ethnicregion	1.020***	0.184	0.294	0.212
	(0.268)	(0.387)	(0.300)	(0.381)
Country-year FE	yes	yes	yes	yes
Region FE	no	yes	no	yes
Controls	yes	no	yes	no
R-squared	0.345	0.193	0.431	0.325
Observations	6,578	6,612	6,684	6,718
Number of regions	557	562	557	562

Note: Standard errors clustered at the leader level

Chinese total aid flows increase by 177% (column 1)



Birth regions and US humanitarian aid

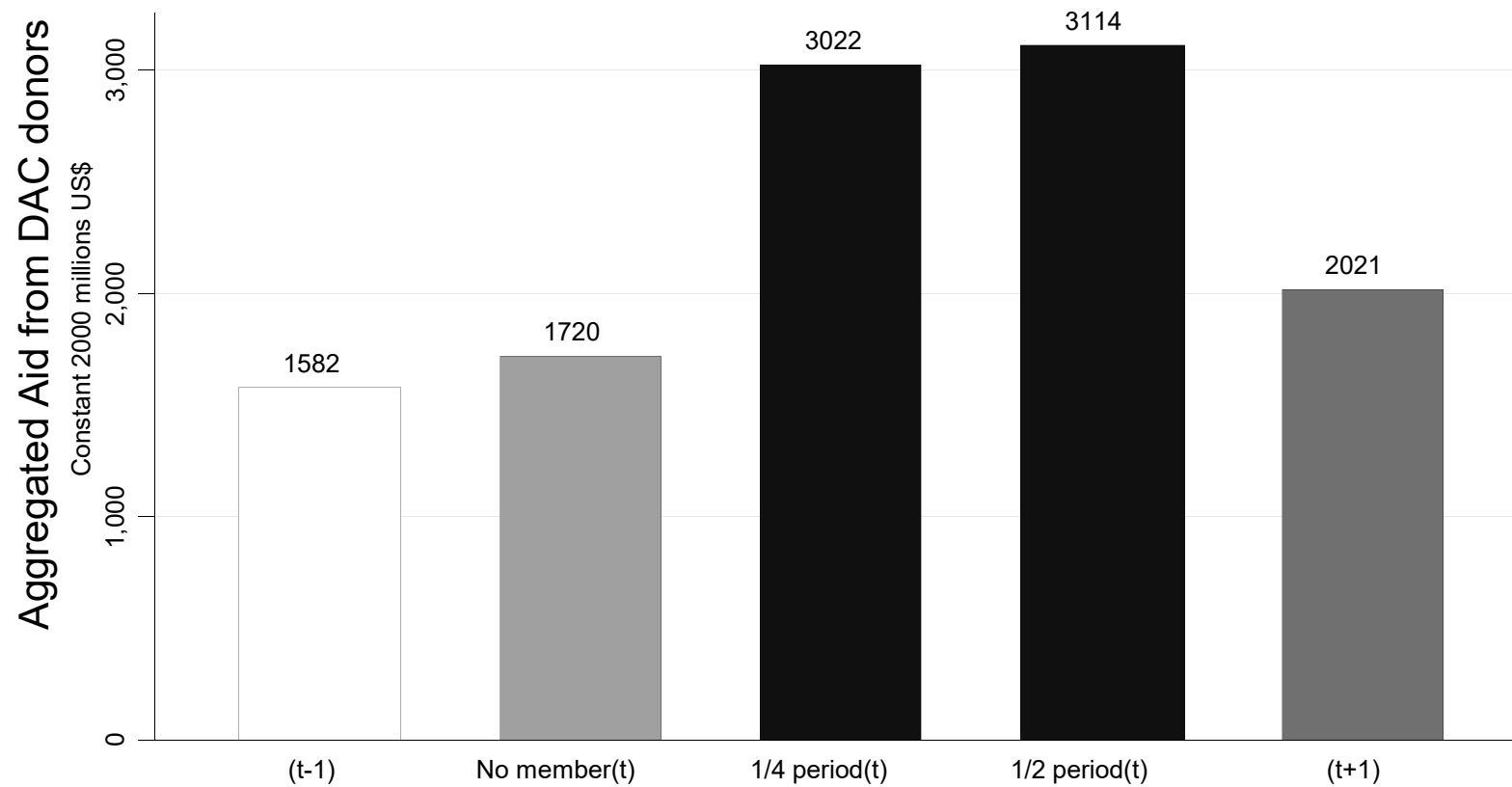
	(1)	(2)	(3)	(4)	(5)
Birth region	0.614 ^{***}	0.501 ^{***}	0.368 ^{**}	0.391 ^{**}	0.941 ^[*]
	(0.156)	(0.155)	(0.149)	(0.147)	(1.104)
					[0.057]
Controls	X	X	X	X	X
Country FE	X	X	X	X	
Disaster type FE		X	X	X	
Year FE			X	X	
Disaster area FE					X
Observations	836	836	836	836	836
R^2	0.151	0.227	0.343	0.381	0.881

- OFDA aid for 6,228 rapid-onset natural disasters to 50 recipient countries, 1964-2017
- No effect at selection; 156% increase in aid when region is birth region

Source: Bommer, Dreher, Perez-Alvarez (2019)



Aid commitments and UNSC membership

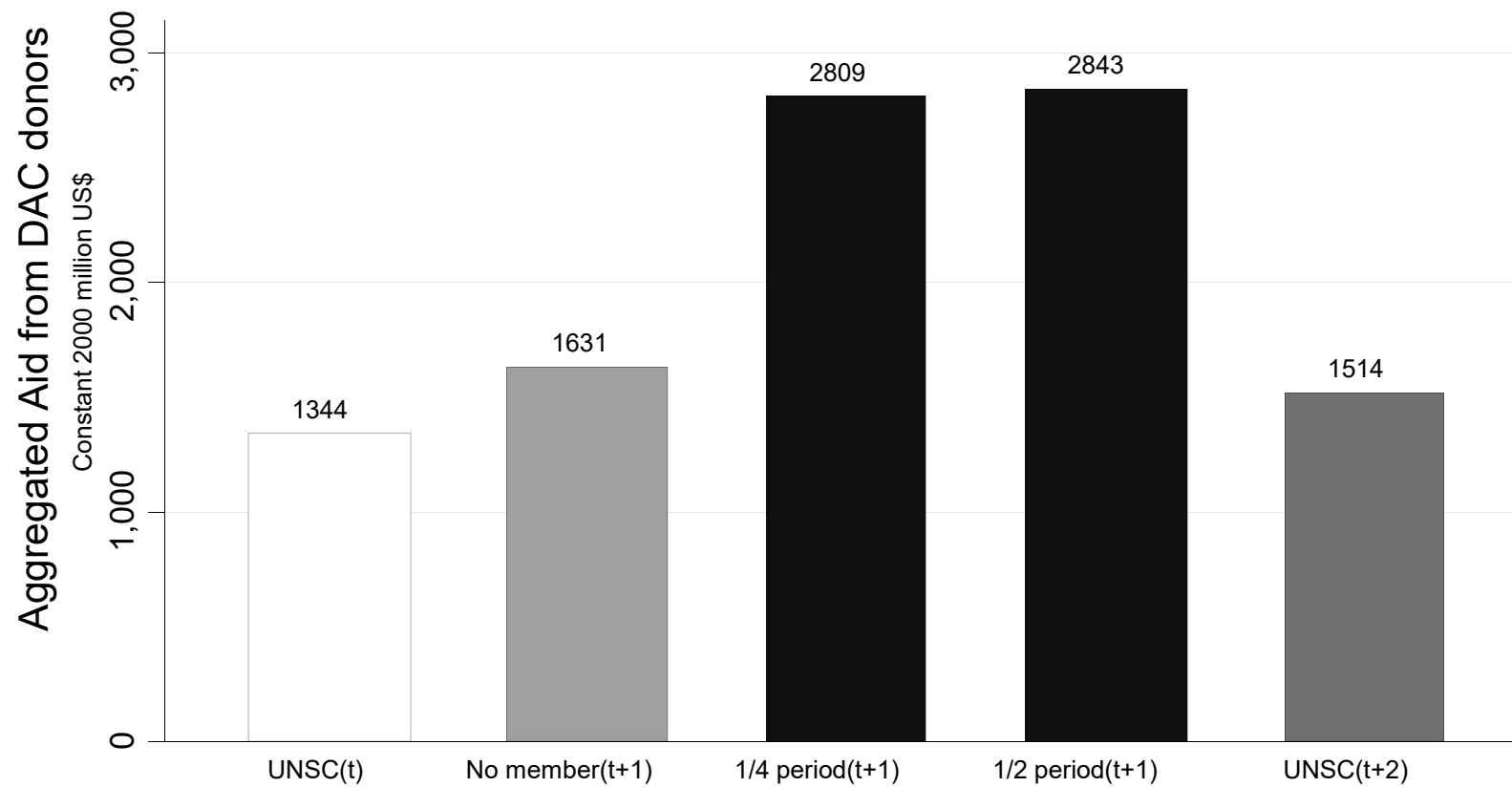


4-year periods, 1959-2009, excluding Russia and China

Source: Dreher, Eichenauer, Gehring (2018, WBER)



Aid disbursements and UNSC membership

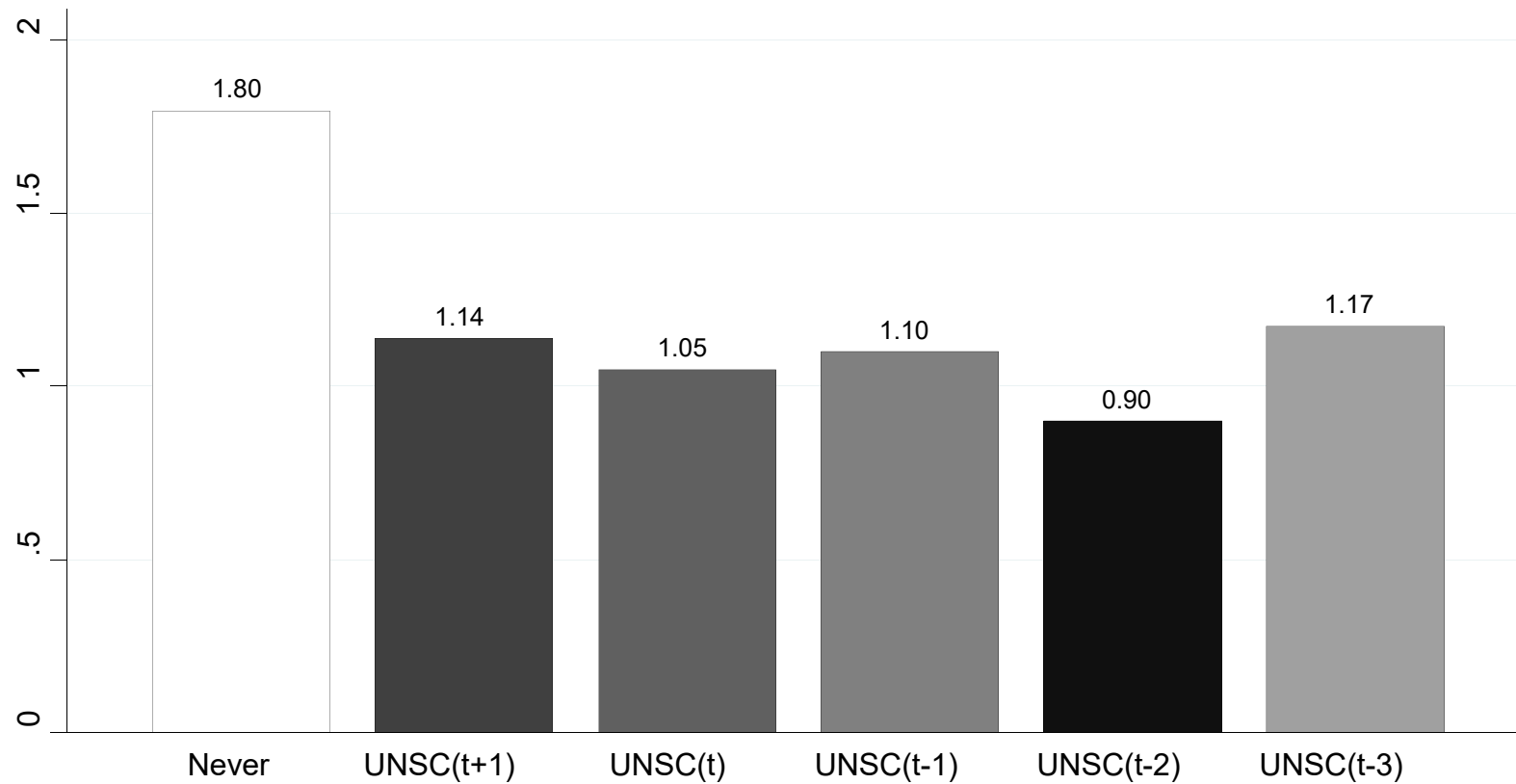


4-year periods, 1959-2009, excluding Russia and China

Source: Dreher, Eichenauer, Gehring (2018, WBER)



GDP per capita growth in t and UNSC membership

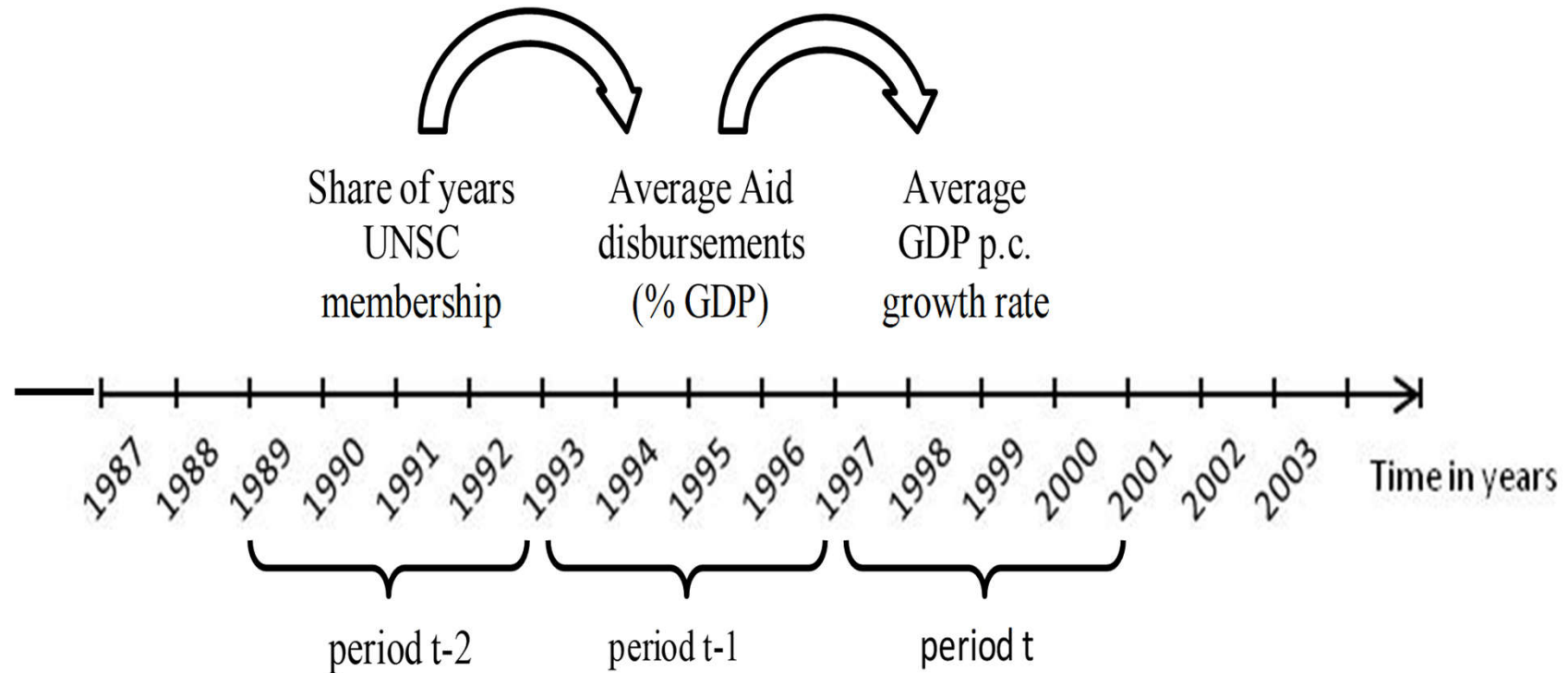


4-year periods, 1959-2009, excluding Russia and China

Source: Dreher, Eichenauer, Gehring (2018, WBER)



The hypothesized timeline



Source: Dreher, Eichenauer, Gehring (2018, WBER)

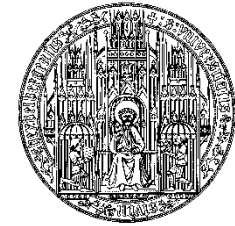


Results, 1970-2005, OLS, Clemens et al. (2012)

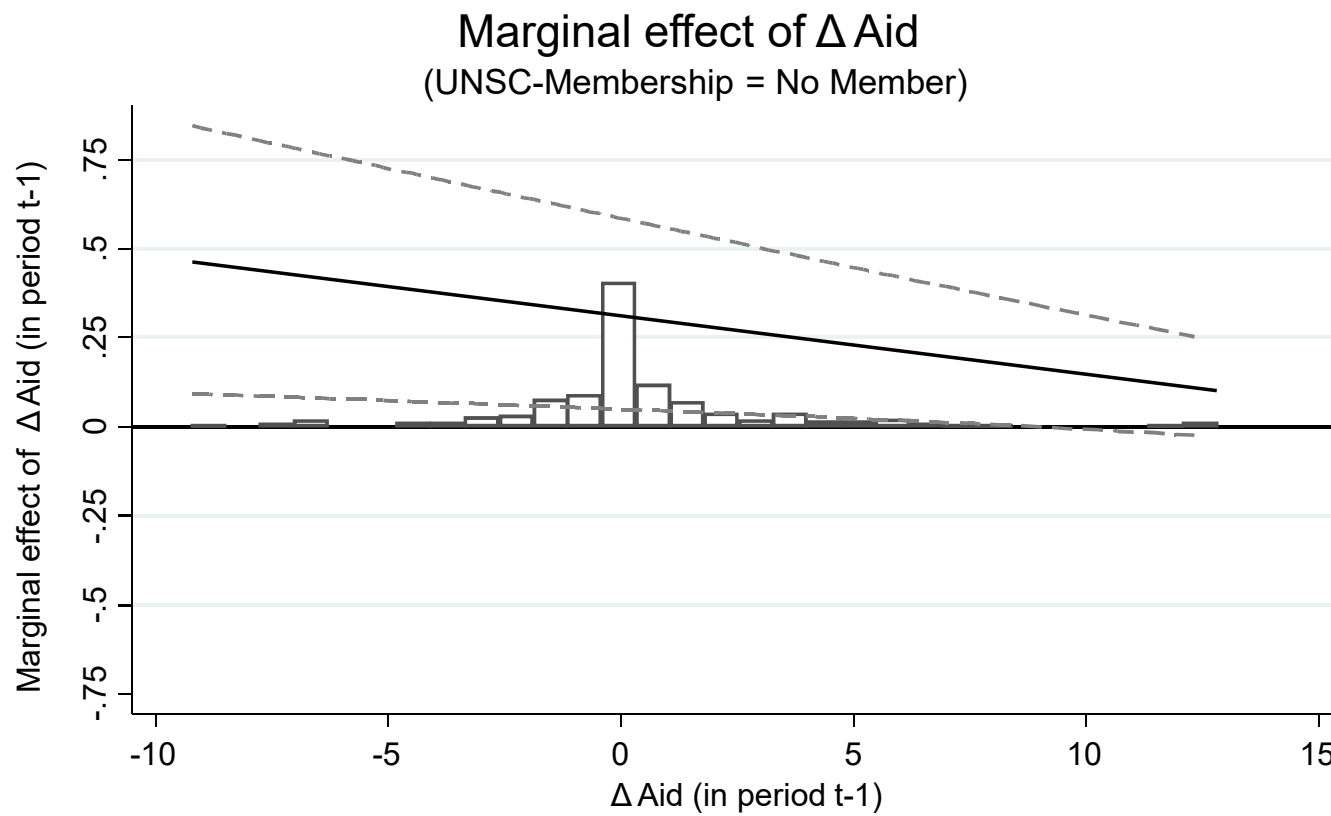
	Burnside and Dollar		Rajan and Subramanian	
	(1)	(2)	(1)	(2)
	Coef.	Std. err.	Coef.	Std. err.
Aid (t-1)	0.388**	(0.193)	0.356**	(0.149)
Aid (t-1) squared	-0.008**	(0.004)	-0.007	(0.004)
UNSC (t-2)	-1.709	(1.080)	-0.947	(1.442)
UNSC (t-2)*Aid (t-1)	-1.182***	(0.373)	-1.365*	(0.745)
First difference?	Yes		Yes	
Adj. R-Squared	0.21		0.31	
Number of Observations	323		351	

Included control variables BD: Initial GDP/capita, Ethnic fractionalization, Assassinations, Ethnic fractionalization*assassinations, dummies for Sub-Saharan Africa and East Asia, Institutional quality, M2/GDP (lagged), Policy, and period dummies

Included control variables RS: Initial GDP/capita, Initial policy, (log) Initial life expectancy, Geography, Institutional quality, (log) Inflation, Initial M2/GDP, Budget Balance/GDP, Revolutions, Ethnic fractionalization, and dummies for Sub-Saharan Africa and East Asia



“Burnside and Dollar”, 1970–2005

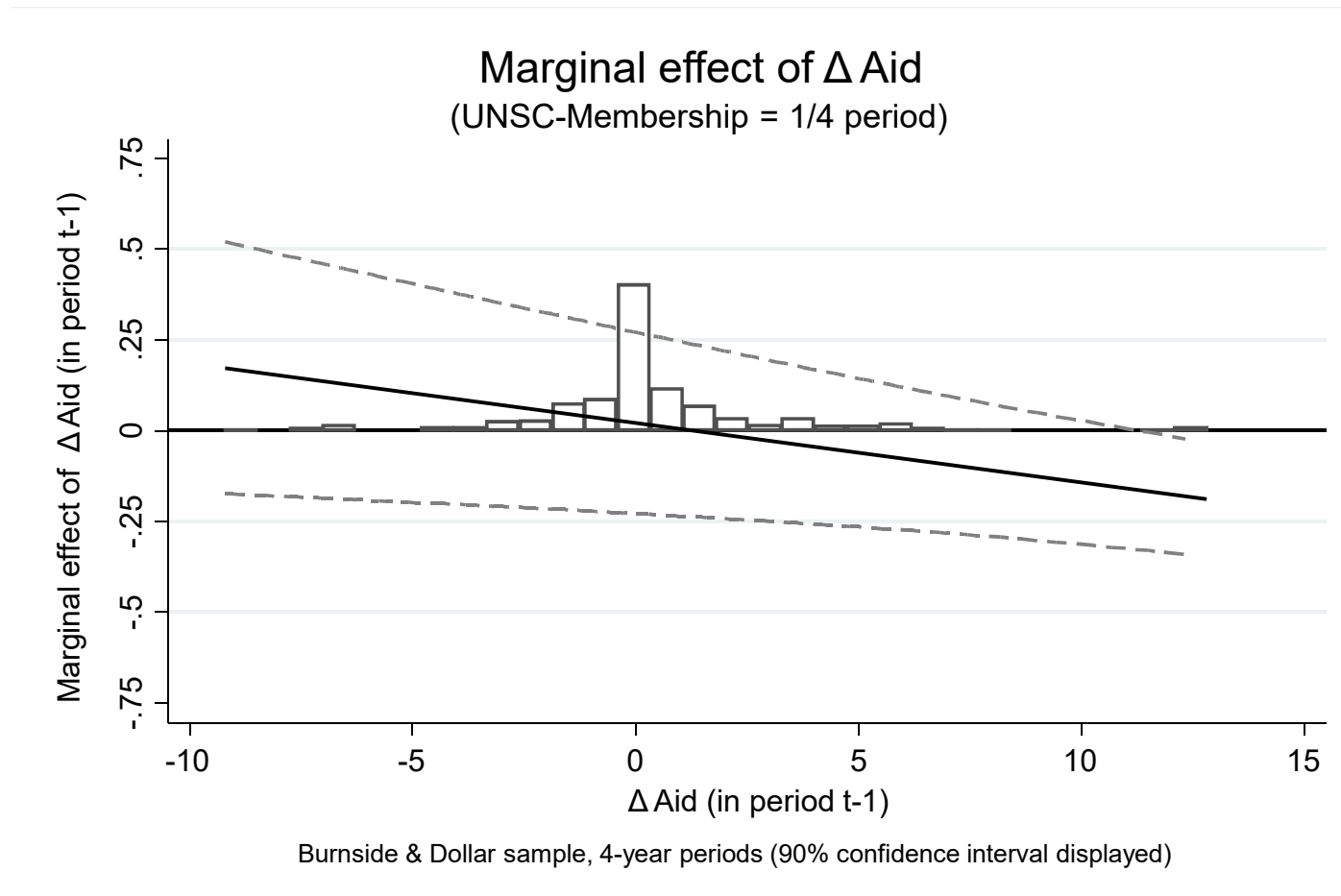


Burnside & Dollar sample, 4-year periods (90% confidence interval displayed)

Source: Dreher, Eichenauer, Gehring (2018, WBER)



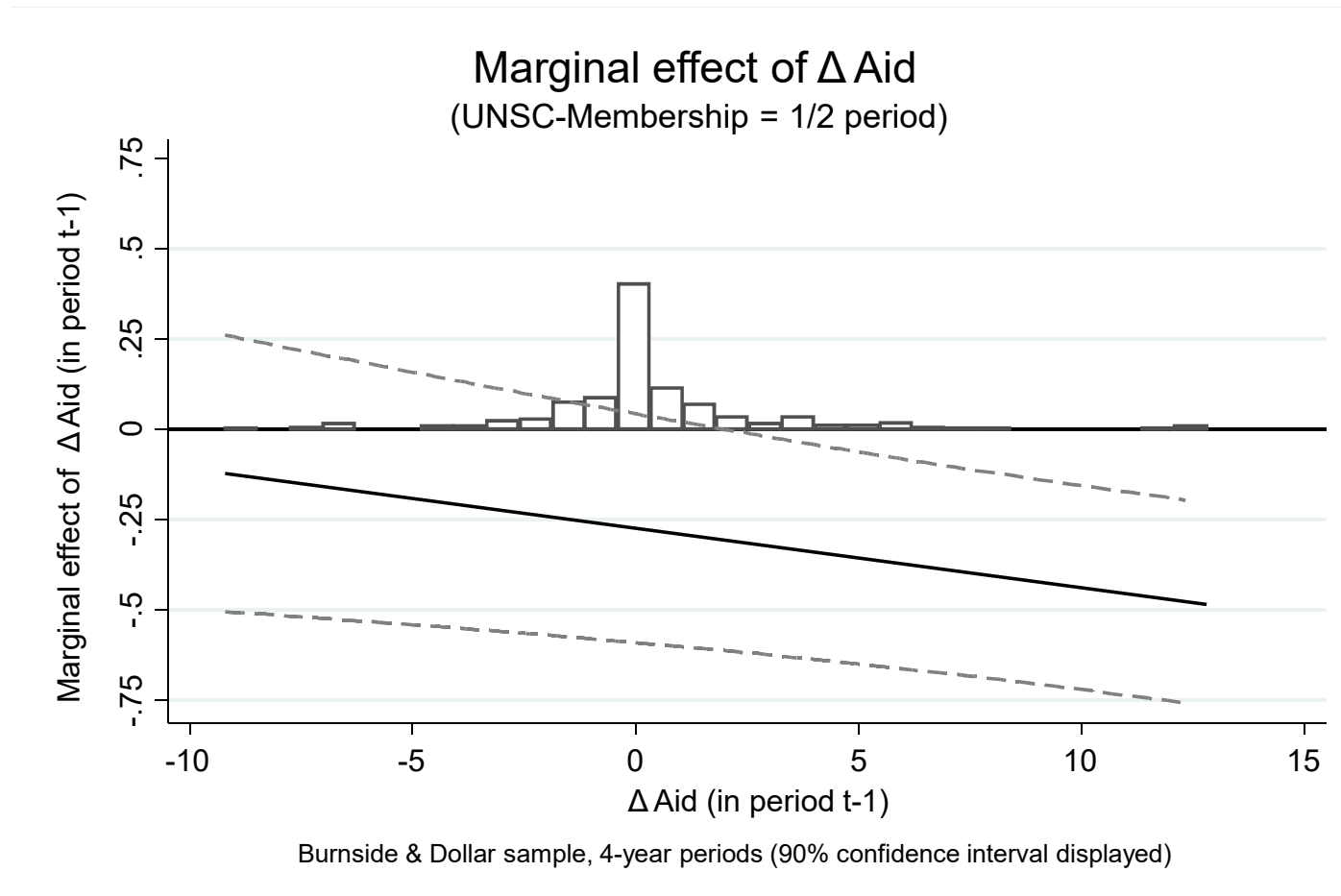
“Burnside and Dollar”, 1970–2005



Source: Dreher, Eichenauer, Gehring (2018, WBER)



“Burnside and Dollar”, 1970–2005



Source: Dreher, Eichenauer, Gehring (2018, WBER)



Birth regions and light, Chinese aid, OLS

	(1)	(2)	(3)	(4)	(5)
Time lag	1	2	3	4	5
Aid p.c.	0.0037** (0.002)	0.0063** (0.003)	0.0116*** (0.002)	0.0139*** (0.004)	0.0075*** (0.002)
Aid* birth region	0.0114 (0.01)	0.0182 (0.012)	0.015 (0.012)	0.0115 (0.014)	0.0023 (0.005)
Birth region	0.0495 (0.031)	0.0556* (0.029)	0.0541** (0.023)	0.0255 (0.019)	0.0109 (0.015)
Observations	69252	63481	57710	51939	46168

- Dep var.: nightlight p.c.
- Sample: 2000-2011, 48 African countries, ADM2 regions
- Results hold at ADM1 and when aid is instrumented (with IV introduced below)



Summary so far

- Effect of politically motivated aid at the country level is lower than those of all aid
- Homogeneity assumption violated
- LATE in IV regressions needs to be interpreted carefully (as a lower bound)
- Results of previous work using political-interest variables likely to show lower bound



More recent ideas for identification

- Werker et al. (AEJ-Macro 2009)
 - effect of Arab donors' foreign aid on economic growth
- Nunn & Qian (AER 2014)
 - effect of US food aid on civil conflict
- Ahmed (QJPS 2016)
 - effect of US aid on recipient democracy
- BUT: On potential pitfalls to identification, see Jaeger et al. (2018), Goldsmith-Pinkham et al. (2019)



Our instrument at the country-level

Donor government fractionalization * Probability of receiving aid



variation over time



variation across recipients

- The interaction resembles a diff-in-diff approach:

Comparison of effects of aid on growth in...

regular and irregular aid recipient countries...

when donor government fractionalization changes.

- Important to test pre-trends, alternative explanations, placebos, etc.



Our instrument

- Probability of receiving aid itself is endogenous:
 - The interaction of the endogenous with an exogenous variable can be interpreted to be exogenous when controlling for the level of the endogenous one (Bun and Harrison 2014, Nizalova and Murtazashvili 2016)
- Frac could be correlated with recipient countries' characteristics
 - Control for the level of Frac (recipient country fixed effects)
 - Control for recipient characteristics (and their interactions with frac and prob): trade, economic freedom



Identifying assumptions

Assumption 1

$$E[\varepsilon_{it} | FRAC_{i,t}] = 0,$$

i.e., donor *FRAC* is exogenous to recipient growth, controlled for the variables in the model (cf., Bun and Harrison 2014: 4).

Assumption 2

$$E[Aid_{i,t-1} \varepsilon_{it} | FRAC_{i,t-1}] = E[Aid_{i,t-1} \varepsilon_{it}],$$

i.e., the “degree of endogeneity” (direction and extent of omitted variable bias) of the endogenous variable does not depend on the exogenous variable (cf., Bun and Harrison 2014: 5, Eq. 2.5).



The instrument – Part 1

Donor government fractionalization (Frac)

The probability that two randomly-chosen deputies from among the parties forming the government represent different parties (Beck et al. 2001, DPI).

How does Frac affect aid disbursements to recipient countries?

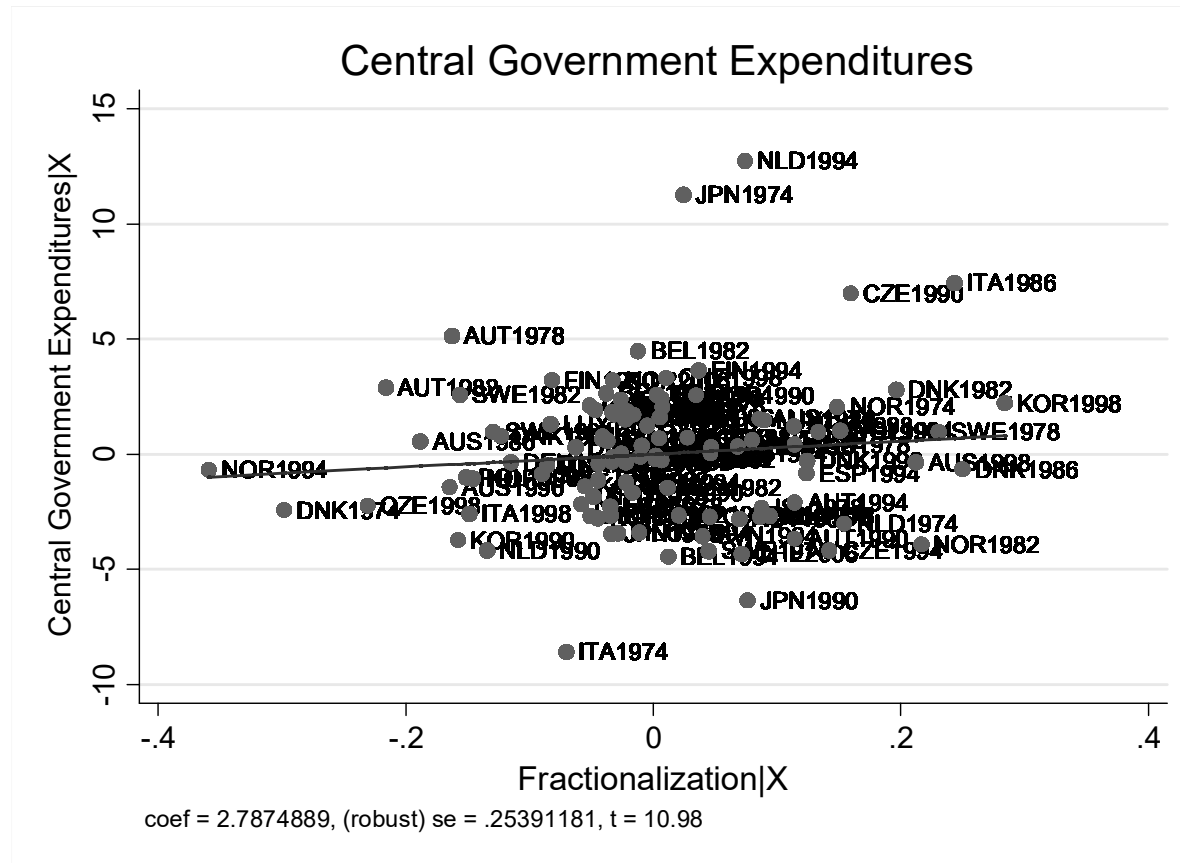
- Fractionalization → government expenditures ↑
Roubini and Sachs (1989), Scartascini and Crain (2002)
- Government expenditures → aid budgets ↑
Brech and Potrafke (2014), Round and Odedokun (2004)
- Aid budgets → aid disbursements to recipient countries ↑
Dreher and Fuchs (2011)

Source: Dreher and Langlotz (2019)



Govfrac → Government Expenditures

Scartascini & Crain (2002) specification

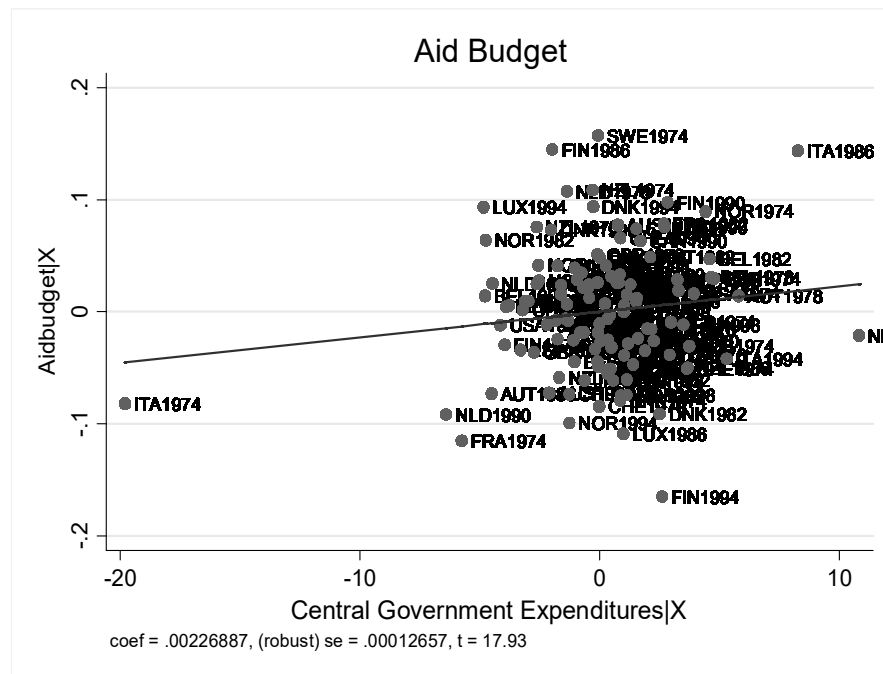


Source: Dreher and Langlotz (2019)

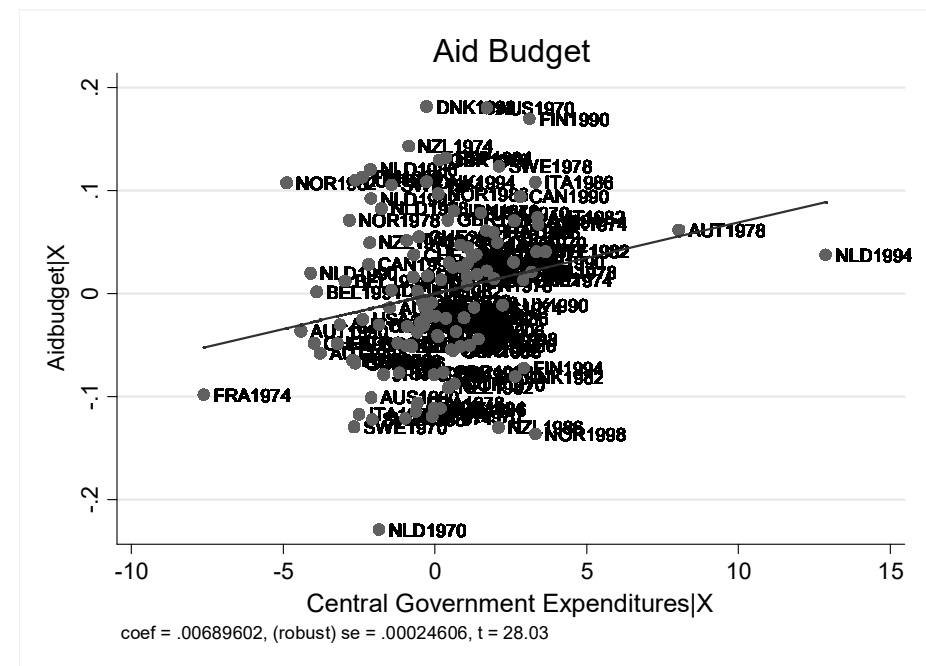


Government Expenditures → Aidbudget

Fuchs et al. (2014) specification



Dropping Italy 1974



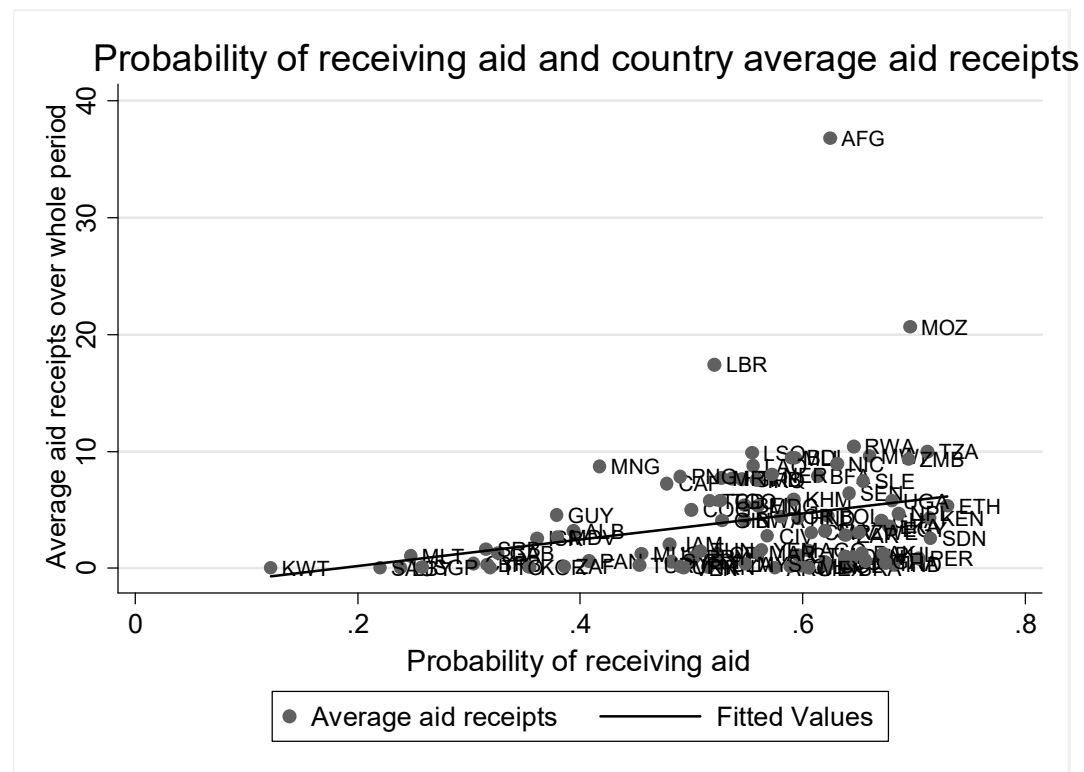
Source: Dreher and Langlotz (2019)



The instrument – Part 2

Probability of receiving aid

- $\overline{p_{i,j}} = \frac{1}{36} \sum_{y=1}^{36} p_{i,j,y}$ (alternative: “historic” probabilities)
 $p_{i,j,y}$: dummy=1 if recipient i received positive amounts of aid from donor j in year y



Source: Dreher and Langlotz (2019)



Method

- Clemens et al.'s (2012) permutations of Burnside & Dollar (2000)
- 4 year-periods from 1974-2009, 96 recipient countries

$$Growth_{i,t} = \beta_1 Aid_{i,t-1} + \beta_3 X_{i,t} + \beta_4 \eta_i + \beta_5 \tau_t + \varepsilon_{i,t} \quad (1)$$

Zero stage

$$Aid_{i,j,t} = \beta' Y_{i,j,t} = \gamma_1 FRAC_{j,t} P_{i,j} + \varepsilon_{i,j,t} \quad (2)$$

- aggregate predicted dyadic aid across donors $\widehat{Aid}_{i,t} = \sum_j \widehat{\beta}' Y_{i,j,t}$ (Rajan & Subramanian 2008)
- use $\widehat{Aid}_{i,t-1}$ as instrument for $Aid_{i,t-1}$ from (1)
- in the first stage we predict $\widehat{Aid}_{i,t-1}$ and substitute it for $Aid_{i,t-1}$ in (1)

η_i	recipient country fixed effects
τ_t	period fixed effects
$X_{i,t}$	vector of controls (Burnside & Dollar 2000)
ε, u	error term



Method

- Clemens et al. (2012) permutations of Burnside & Dollar (2000)
- 4 year-periods from 1974-2009, 96 recipient countries

Second stage

$$Growth_{i,t} = \beta_1 \widehat{Aid}_{i,t-1} + \beta_3 X_{i,t} + \beta_4 \eta_i + \beta_5 \tau_t + \varepsilon_{i,t} \quad (1)$$

Zero stage

$$Aid_{i,j,t} = \beta' Y_{i,j,t} = \gamma_1 FRAC_{j,t} P_{i,j} + \varepsilon_{i,j,t} \quad (2)$$

- aggregate predicted dyadic aid across donors $\widehat{Aid}_{i,t} = \sum_j \widehat{\beta}' Y_{i,j,t}$ (Rajan & Subramanian 2008)
- use $\widehat{Aid}_{i,t-1}$ as instrument for $Aid_{i,t-1}$ from (1)
- in the first stage we predict $\widehat{Aid}_{i,t-1}$ and substitute it for $Aid_{i,t-1}$ in (1)

η_i	recipient country fixed effects
τ_t	period fixed effects
$X_{i,t}$	vector of controls (Burnside & Dollar 2000)
ε, u	error term



Data

Dependent variable: four-year averages

- GDP/capita Growth
Clemens et al.'s (2012) extended dataset of Burnside & Dollar (2000),
Minasyan's (2014) extension

Independent variables: four-year averages

- Bilateral net aid disbursements (in percent of GDP)
OECD 2014 (DAC2a): 28 DAC donors
- Burnside & Dollar (2000) covariates:
Log Initial GDP/capita, Assassinations, Ethnic*Assassinations, M2/GDP (t-1),
Policy (based on budget balance/GDP, inflation and trade openness)

Time invariant: Ethnic Fractionalization, Sub-Saharan Africa, East Asia,
Institutional Quality



Results: Aid and Growth, 1974-2009, IV

	(1)	(2)	(3)	(4)
Aid/GDP	-0.298 (0.441)	-0.254 (0.403)	-0.087 (0.378)	0.002 (0.378)
Aid/GDP squared		-0.011 (0.012)		-0.018 (0.016)
Aid lagged?	no	no	yes	yes
Number of observations	739	739	636	636
Adjusted R-squared	0.298	0.299	0.304	0.306
First Stage				
Predicted aid	5.208*** (1.308)	5.208*** (1.308)	5.483*** (1.215)	5.483*** (1.215)
Squared predicted aid		1.195*** (0.386)		1.126*** (0.212)
Cragg-Donald F stat.	12.370	18.893	14.799	16.576
Kleibergen-Paap F stat.	15.881	9.586	20.393	28.113
Kleibergen-Paap LM stat.	14.427	6.958	17.263	18.720
K-P LM stat. p-val.	0.000	0.008	0.000	0.000

Notes: Recipient- and period-fixed effects included. Pairs cluster bootstrap standard errors in parentheses with 500 replications (clustered at the recipient country level; significance levels: * 0.10, ** 0.05, *** 0.01) in the second stage regressions. Standard errors in parentheses (clustered at the recipient country level; significance levels: * 0.10, ** 0.05, *** 0.01) in the first stage regressions.

Source: Dreher and Langlotz (2019)

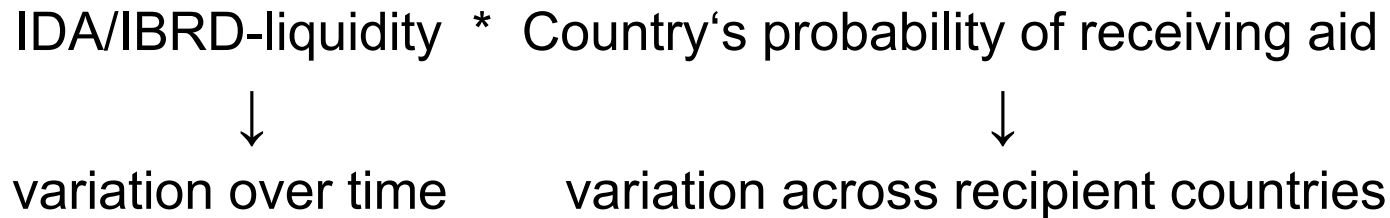


Dreher and Langlotz (2019) Results

- No significant effect of aid on growth
 - But also not significantly different from (significant and more efficient) OLS
 - Low power, in line with all other studies at the country level (Ioannidis et al. 2017)
- Positive effect on investment and (private) consumption, negative on net exports
 - Potentially positive longer-run effects
- No significant interaction effects (“good” policy, institutions etc.)
- IV can be used for a broad range of questions
 - Effect of aid on conflict, institutions, refugee flows etc.



Our instrument at the country level, WB



- The interaction resembles a diff-in-diff approach:

Comparison of effects of aid on regional growth in...

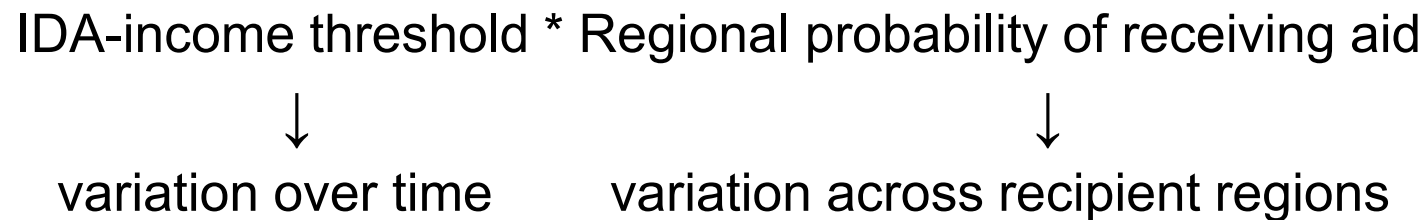
regular and irregular aid recipient regions...

when IDA/IBRD liquidity changes

Result: Evidence of a positive growth-effect for IDA, but not IBRD



Our instrument at the regional level, WB

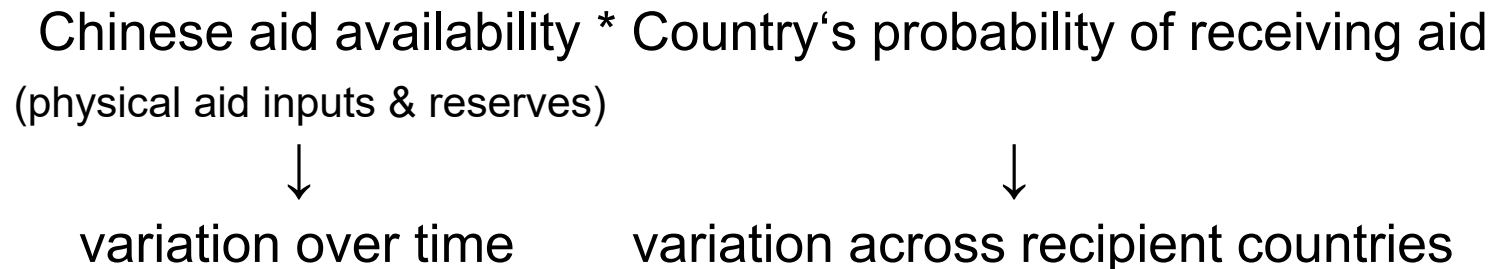


- The interaction resembles a diff-in-diff approach:
Comparison of effects of aid on regional growth in...
regular and irregular aid recipient regions...
when the recipient country's IDA status changes

Result: No evidence of a positive growth-effect



Our instrument at the country level, China



- The interaction resembles a diff-in-diff approach:

Comparison of effects of aid on growth in...
regular and irregular aid recipient countries...
when the availability of China's aid changes

Result: Evidence of a positive growth-effect

Our instrument at the regional level, China



Chinese steel production * Regional probability of receiving aid



variation over time



variation across recipient regions

- The interaction resembles a diff-in-diff approach:

Comparison of effects of aid on regional growth in...

regular and irregular aid recipient regions...

when China's steel production changes

Result: Evidence of a positive growth-effect



Conclusions

- Political economy variables can be used to predict the amount of foreign aid
 - temporary UNSC membership, Executive Board Membership positions, birth regions
- LATE of politically motivated aid is different from those of other aid (at the country-level)
- More promising identification strategy using instruments based on interactions (with the appropriate caution)
 - Donor government fractionalization*probability to receive aid
 - IDA income threshold*probability to receive aid
 - IDA/IBRD liquidity*probability to receive aid
 - Chinese physical inputs/reserves*probability to receive aid
- Results:
 - Mixed for Western donors; more positive than many would think for China



How to instrument squared terms

- Different ways to instrument squared terms
- Two alternatives (Wooldridge 2010, 267f.)

$$y = c + \beta_1 x + \beta_2 x^2 + \varepsilon \text{ with } z \text{ as the instrument}$$

<u>Alternative 1</u>	<u>Alternative 2</u>
Do all in one step: <i>Ivreg2 y (x x_sq = z z_sq) or</i> 1. <i>reg x z z_sq</i> <i>predict x_hat, xb</i> 2. <i>reg x_sq z z_sq</i> <i>predict x_sq_hat</i> 3. <i>reg y x_hat x_sq_hat</i>	Separate instruments: 1. <i>reg x z</i> <i>predict x_hat, xb</i> <i>gen x_sq_hat = x_hat^2</i> 2. <i>reg x_sq x_sq_hat</i> <i>drop x_sq_hat</i> <i>predict x_sq_hat</i> 3. <i>reg y x_hat x_sq_hat</i>