Democracy, Autocracy, and International Student Flows
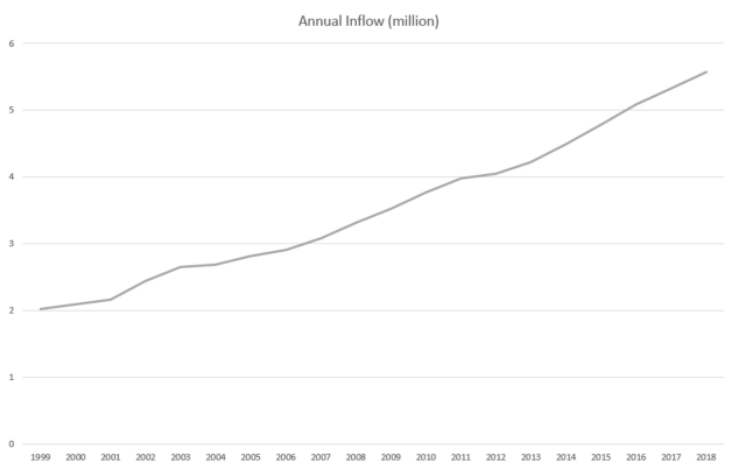
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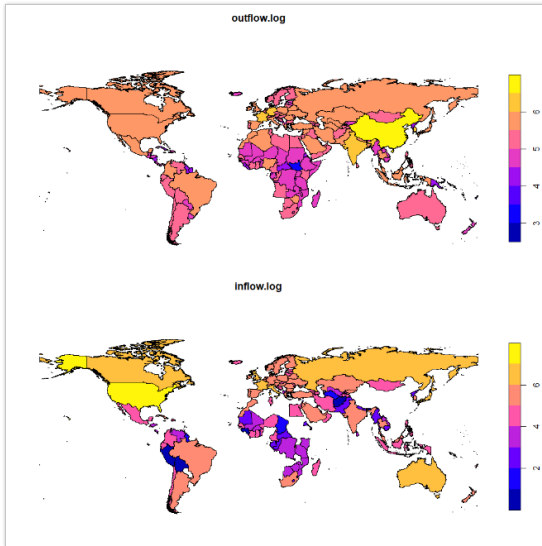
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Motivation

Figure: Number of Annual Student Inflows: 1999-2017

Motivation

Figure: Geographical Distributions of Student Flows (logged): 1999-2017

Motivation

- Higher education is one of the largest service trade sectors.
- Effects of international student flows:
  - host countries' economy (Boag 2011; Crawford 2009; Douglass et al. 2011)
  - technological innovations (Chellaraj et al., 2008)
  - migration (Dreher and Poutvaara 2005)
  - brain drain (Hugo 2005; Tsang 2001; Cai 2008)
  - democratization (Spilimbergo 2009; Chankseliani 2018; Gift and Krcmaric 2017)
- Large quantity, uneven distribution, important part of service trade, diverse effects → important to know causal determinants of student flows.
  - Drivers we know: distance, language, colonial ties, migrant networks, economic development..
  - We know little about the role of politics.

Figure: Politics and Student Flows

In this paper, we study the effect of regime type on student flows, focusing on dyadic regime pairs.

Theory and Argument

- Dyadic Regime Pairs

		Host/Destination	
		Democracy	Autocracy
Home/Origin	Democracy	$D \rightarrow D$	$D \rightarrow A$
	Autocracy	$A \rightarrow D$	$A \rightarrow A$

- Two causal channels linking regime type and student flows:
  - Policy restrictions
  - Quality of higher education

Theory and Argument

Policy Restrictions:

- Political Tension
    - national security concerns (Golden 2017; Johnson 2019)
    - regime similarity (Werner 2000; Bennett 2006)
- Political Sensitivity
    - democratization effects (Spilimbergo 2009; Gift and Krcmaric 2017)
- Political Tension + Political Sensitivity → [DD, AA] > [AD, DA]
- Accountability of Government
    - people have the right to education and leave any country, including their own, and return to the country (UDHR 1948)
    - democratic citizens can more readily hold leaders accountable (Bueno de Mesquita et al., 2005)
    - reciprocal reductions of restrictions by democratic dyads (Mansfield et al. 2002)
- Expected Rank Order:
    - $DD > AA > AD \approx DA$

Theory and Argument

Quality of Higher Education:

- Public education: $D > A$ (Deacon 2009; Rudra and Haggard 2005)
    - Demand for high-quality universities: $D > A$
    - Supply of high-quality universities: $D > A$
    - Democratic countries have more and better universities
- For dyadic regime pairs:
    - More and better universities generate the highest student flows between two democracies (DD is largest).
    - Democratic host offers more and better universities for students from autocratic home ($AD > AA$).
    - Autocratic host appeals less to students from democratic home ($AA > DA$).
- Expected Rank Order:
    - $DD > AD > AA > DA$

Hypotheses

Combining the two rank orders, we get $DD > AD \approx AA > DA$, and formulate the following hypotheses:

- H1: Democratic dyads (DD) have the highest student flows.
- H2: Democratic home-autocratic host dyads (DA) have the lowest student flows.
- H3: Autocratic dyads (AA) and autocratic home-democratic host dyads (AD) have indeterminate levels of student flows.

Research Design

- Sample: 152 home and 107 host countries from 1999 to 2017.
- Unit of analysis: directed dyad-year.
- DV: annual number of students from a home to a host country (UNESCO).
- IV: Dem_home, Dem_host, Dem_home $*$ Dem_host (POLITY5).
- Control variables:
    - Social-economic: GDP per capita; Population; Distance; Contiguity; Language.
    - Political: Colonial ties; EU membership; Alliance; UN voting similarity.
- Estimator: Poisson pseudo maximum likelihood (PPML) estimator (Silva and Tenregyo 2006)
    - Too many zero outcomes (57.8% of directed dyad years) and heteroskedastic error variance.
    - OLS estimator leads to a correlation between covariates and the error term, and inconsistent statistical estimates.
    - PPML outperforms OLS in statistical properties in such situations.

Research Design

- $Y_{ijt} = \beta_0 + \beta_1 Dem\_home_{it-1} + \beta_2 Dem\_host_{jt-1} + \beta_3 Dem\_home_{it-1} * Dem\_host_{jt-1} + \beta X_{ijt-1} + \varepsilon_{ijt}$
- We expect $\beta_3 > 0$ (H1); $\beta_1 < 0$ (H2); β_2 is indeterminate (H3).
- IVs are lagged by one year, lagged DV, and Year FE are included.
- Estimate both panel- and period-average models (regime pair difference).
- Robustness Tests:
    - Home-, Host- fixed effects.
    - Reduce the sample (exclude China and Singapore).
    - Alternative regime type measures (Cheibub et al., 2010; V-Dem 2021).

Findings

Table: Daydic Regime Pairs and Student Flows

	(1) Panel Full Model	(2) Period-Average Full Model
H2: Dem_home	-0.898***	-1.039***
	(0.164)	(0.238)
H3: Dem_host	-0.517***	-0.242
	(0.167)	(0.181)
H1: Dem_home*Dem_host	0.606***	0.583**
	(0.206)	(0.295)
Controls	Yes	Yes
N	151928	18678

Robust standard errors are clustered on dyads.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, two-tail tests.

Findings

Substantive Effects:

Table: Percent Differences of Student Flows Relative to Autocratic Dyads

	Panel Full Model	Period-Average Full Model
H1: DD	83% +	79% +
H2: DA	59% −	65% −
H3: AD	22% −	29% −

- DV: Index of a country's restriction on student flows in 2002 (Nguyen-Hong and Wells 2003).
- Sample: 19 countries (45% of outflows and 68% of inflows between 1999 and 2017).

	(1) Inflow	(2) Inflow	(3) Outflow	(4) Outflow
Polity2	-0.236***	-0.216***	-0.450***	-0.343***
	(0.032)	(0.050)	(0.049)	(0.061)
GDP per capita(log)		-0.159		-0.828***
		(0.198)		(0.260)
constant	5.559***	6.825***	7.815***	14.420***
	(1.586)	(1.586)	(0.459)	(2.290)
adj. R^2	0.670	0.685	0.683	0.802
N	19	19	19	19

Test of Causal Mechanism: Democracy and National Share of Top Universities

- DV1: A country's share of top 400 universities based on Times Higher Education World University Ranking 2014-2015.
- DV2: A country's share of top 500 universities based on the Center for World University Rankings (CWUR) 2015.

	(1) Times	(2) Times	(3) CWUR	(4) CWUR
Polity2	0.077**	0.048**	0.073**	0.044*
	(0.030)	(0.021)	(0.034)	(0.026)
GDP per capita(log)		0.533***		0.528***
		(0.173)		(0.197)
constant	0.275***	-4.160***	0.299***	-4.097**
	(0.087)	(1.381)	(0.114)	(1.572)
adj. R^2	0.030	0.117	0.020	0.088
N	161	155	161	155

Conclusion

- Offers a new argument about how regime type influences student flows.
- Employs a sample with largest spatial and temporal coverage.
- Complements to the literature on trade in goods.
- Contributes to the literature on migration and the research on the impact of democracy on education.

Thank You!

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