

Democracy, Autocracy, and International Student Flows*

Quan Li and Mingsi Song[†]

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Abstract

International student flows increased rapidly over the past two decades, generating significant economic and political ramifications. However, there is little research on the political determinants of this phenomenon. We fill this gap by investigating the impact of regime type. We argue that regime type affects student flows by shaping government restrictions and influencing the demand for higher education and high-quality universities. We hypothesize that student flows are highest in democratic dyads, lowest in democratic home-autocratic host dyads, and hard to predict between autocratic host-democratic home and autocratic dyads. Our empirical analysis employs the largest sample in the literature to date, covering 152 home and 107 host countries across 19 years, and produces evidence that broadly supports our expectations. Tests of the underlying mechanisms demonstrate that more democratic countries impose lower restrictions and have higher shares of the world's top universities. Our research has significant scholarly and policy implications.

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[†]Authorship is shared equally. Quan Li is a professor of political science at Texas A&M University. Email: quanli@tamu.edu; Mingsi Song is a doctoral student in political science at Texas A&M University. Email: mingsi@tamu.edu.

The annual number of students who study abroad in colleges and universities worldwide for a tertiary degree or higher has doubled over the past two decades, rising from 2.01 million in 1999 to 5.33 million in 2017 (UNESCO 2019). Evidence shows that student flows have significant ramifications. They create jobs and raise income in many economies (Boag 2011; Crawford 2009; Douglass et al., 2011), generate technological innovations (Chellaraj et al., 2008), encourage migration (Dreher and Poutvaara 2011), cause “brain drain”—the loss of skilled labor—for less developed countries (Hugo 2005; Tsang 2001; Zhang and Li 2002; Cai 2008), and encourage democratization in student home countries (Spilimbergo 2009; Chankseliani 2018; Gift and Krcmaric 2017). Therefore, understanding the drivers of student flows has economic and political significance.¹

Existing studies on the issue have identified various geographical, social, and economic factors, including distance (Bessey 2012; Beine et al., 2014; Abbott and Silles 2016), common language, shared religion, and migrant networks (Beine et al., 2014; Perkins and Neumayer 2014; Tay 2014), relative wealth and educational quality differentials between home and host countries (Perkins and Neumayer 2014; Abbott and Silles 2016; Van Bouwel and Veugelers 2013; Wei 2013). However, there is little research on how politics influences student flows, even though politics shapes how such flows are incentivized and regulated.

For instance, the idea that international education promotes democracy and world peace has motivated numerous policy initiatives and educational investments by the United States. The Fulbright Program has financed students from foreign countries to study in the US and

¹We use home and origin or host and destination interchangeably.

sent American students and scholars to other countries to study, teach, and research. Since 1946, more than 390,000 Fulbrighters from 160 countries have participated in the Program.² Many autocratic governments also actively finance foreign education to influence the elite and spread their ideologies. In 1960, the Soviet Union founded the People’s Friendship University to train future socialist leaders in the Third World countries.³ Recently, the Chinese government plans to become a major destination for foreign students through its “Belt and Road Initiative.”⁴ Thus, when both democratic and autocratic regimes seek to engage international education, do they influence student flows in the same way? Since student flows are dyadic, do dyadic regime pairs differ? In this article, we study these questions.

We argue that regime type affects student flows via two causal channels: influencing government restrictions over student movement and affecting the demand for higher education and high-quality universities. First, policy restrictions vary in response to political tension between home and host countries, the politically sensitive or democratization effect of student flows, and the extent to which citizens hold leaders accountable. Second, democratic countries provide better public education, particularly in secondary schooling, thus increasing the demand for quality higher education at home and abroad. Building on these two causal mechanisms, we hypothesize that student flows are the highest in democratic dyads, the smallest in democratic home-autocratic host dyads, and hard to predict between autocratic host-democratic home dyads and autocratic dyads.

We test our argument in a sample of 152 home countries and 107 host countries from 1999

²See <https://eca.state.gov/fulbright> and <https://us.fulbrightonline.org/>.

³<http://news.bbc.co.uk/2/hi/europe/8498904.stm>

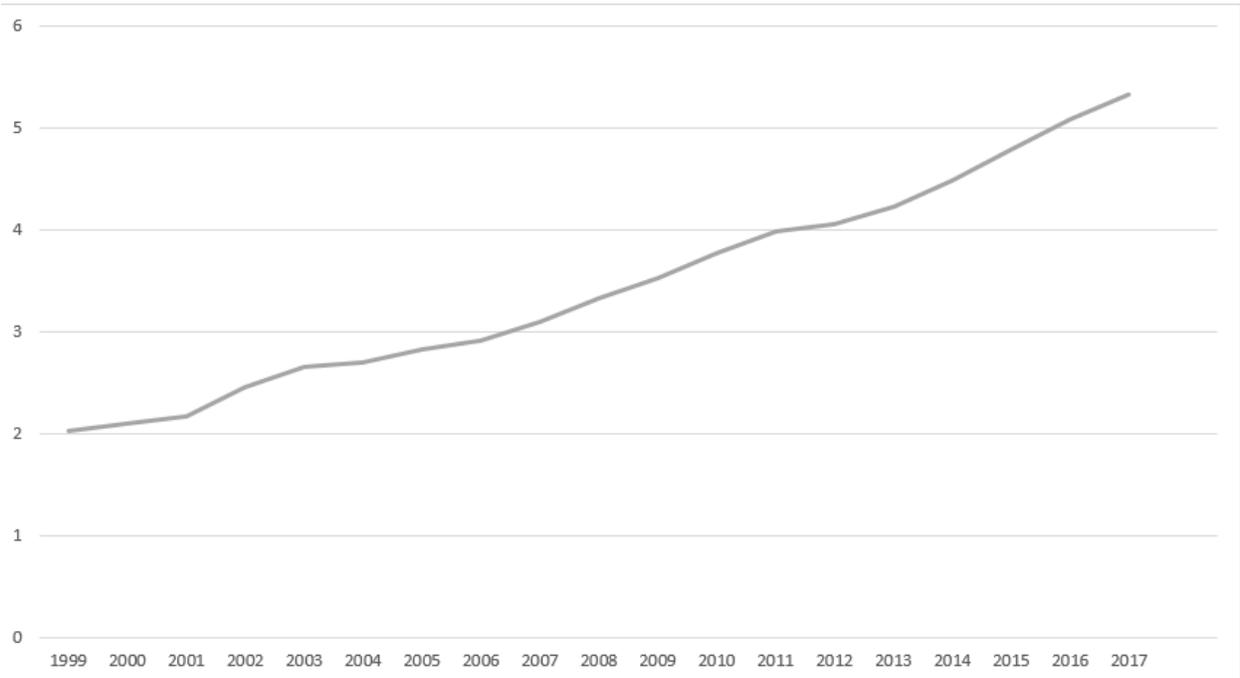
⁴<https://www.studyinchina.com.my/web/page/belt-n-road-helps-swell-foreign-students/>

to 2017. The statistical results broadly support our expectations. We also test two claims that underlie our argument: the negative impact of democracy on government restrictions over student flows and the positive impact of democracy on the number of top universities. These tests further substantiate our theory.

Our research makes several contributions. First, the emerging literature on the drivers of student flows has paid little attention to the role of political factors. We fill this gap by identifying the effect of regime type. Second, many previous empirical studies of student flows often focus on a single or a few destination countries or regions, with a couple of exceptions that look at global samples but over a very short time frame. Our analysis, in contrast, has the broadest empirical coverage to date. Third, an extensive body of literature in international relations studies the impact of regime type on bilateral trade in goods but not trade in services, even though the services sector accounted for 24 percent of the world's total exports by 2016.⁵ Our research extends some argument from the trade-in-goods literature to trade-in-education and highlights critical conceptual distinctions. Fourth, while student movement is closely linked to migration, most migration studies do not directly consider student flows. Our analysis sheds light on a different aspect of migration. Fifth, our study dovetails with the growing literature on the impact of democracy on education and contributes valuable insights regarding democracy's link to higher education. Finally, as trade-in-education has become increasingly important, our research should appeal to policymakers and businesses who seek to liberalize policy restrictions and take advantage of student flows' positive effects.

⁵<https://www2.deloitte.com/us/en/insights/economy/issues-by-the-numbers/trade-in-services-economy-growth.html>

Figure 1: Annual Number of International Student Inflows (in millions), 1999-2017



Data Source: UNESCO (2019) for 155 host countries

Patterns and Significance of Student Flows

Figure 1 shows that globally, the annual number of international students flowing into 155 host countries rose rapidly between 1999 and 2017. In 1999 the number of degree-seeking students who enrolled in colleges and universities overseas was 2.01 million worldwide. This number more than doubled over and grew to 5.33 million in 2017 (UNESCO 2019).

The global spatial distribution of student flows appears uneven and highly concentrated. Table 1 lists data for the top 20 origin and destination countries. During the past two decades, the top 20 origin countries provided over 52% of all international students, amounting to over 27 million. The three largest origins—China, India, and South Korea—were all located in Asia and sent nearly 28% of all student outflows. Similarly, the top 20 destination countries

Table 1: Top 20 Origin and Destination Countries: 1999-2017

Top Origins			Top Destinations			
	Country	Outflow	Percent	Country	Inflow	Percent
1	China	8,690,099	17.77	US	12,366,525	25.29
2	India	3,117,239	6.37	UK	6,183,540	12.64
3	South Korea	1,875,433	3.83	France	3,944,314	8.06
4	Germany	1,630,240	3.33	Australia	3,650,835	7.46
5	France	1,056,458	2.16	Japan	2,249,691	4.60
6	Malaysia	897,800	1.83	Canada	1,762,359	3.60
7	US	893,975	1.82	Russian	1,733,881	3.54
8	Japan	871,157	1.78	Italy	1,078,027	2.20
9	Canada	781,025	1.59	Germany	982,182	1.96
10	Morocco	754,992	1.54	Austria	960,135	1.81
11	Italy	732,280	1.49	Malaysia	886,869	1.76
12	Kazakhstan	710,261	1.45	Spain	706,119	1.44
13	Saudi Arabia	698,424	1.42	Switzerland	684,078	1.39
14	Nigeria	692,248	1.41	South Korea	653,799	1.33
15	Vietnam	692,140	1.41	Netherlands	632,221	1.29
16	Greece	690,006	1.41	South Africa	623,779	1.27
17	Russian	659,853	1.34	New Zealand	598,967	1.22
18	Indonesia	613,304	1.25	Turkey	551,952	1.12
19	Turkey	609,002	1.24	Belgium	449,670	1.02
20	Ukraine	573,950	1.17	Saudi Arabia	489,626	1.00
	Total	27,239,886	52.28	Total	41,188,569	84.00

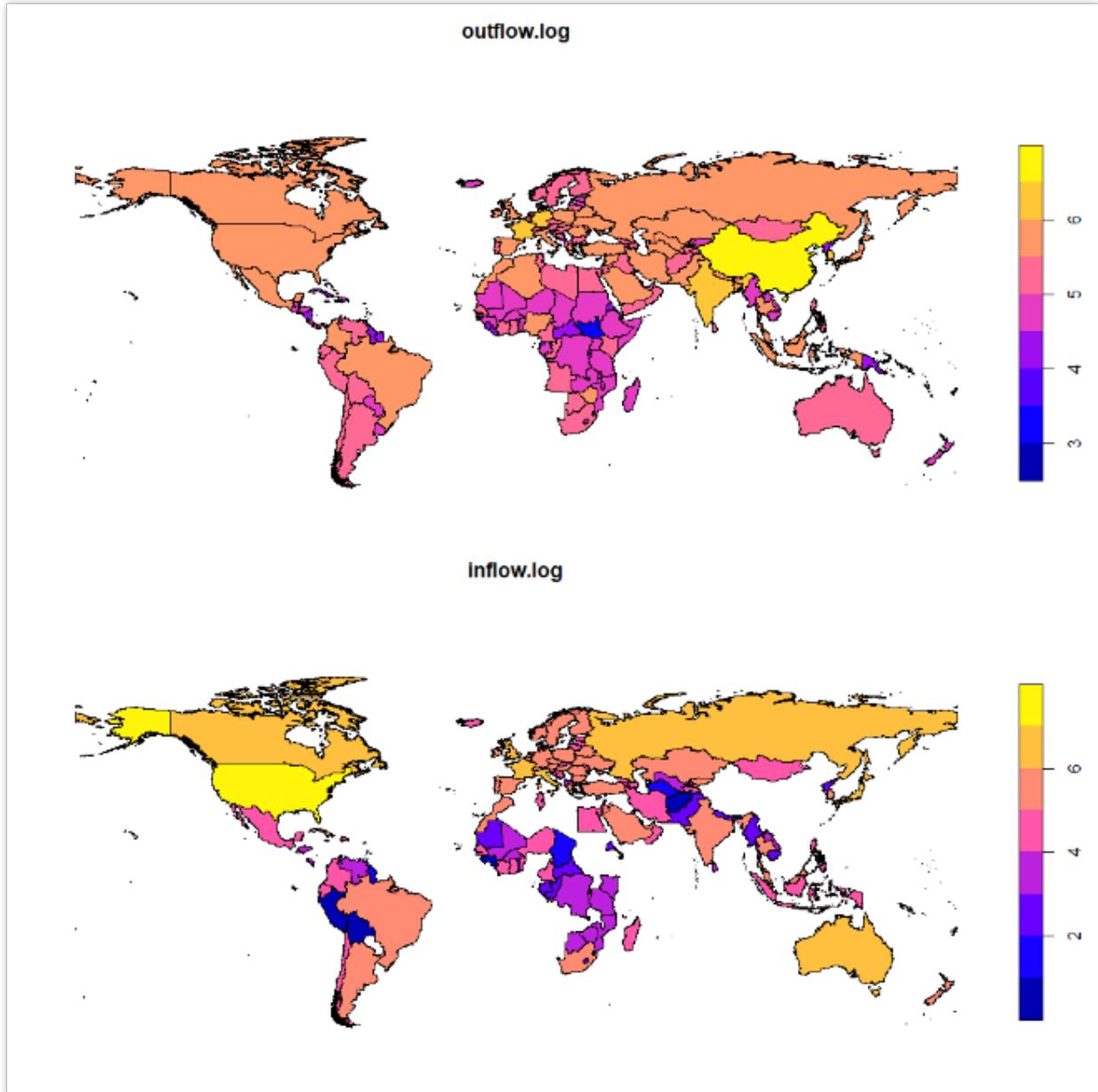
Data Source: UNESCO (2019) for 198 home and 155 host countries

received 84% of all international students, amounting to over 41 million. The three largest destinations—US, UK, and France—accepted over 45% of all student inflows.

Figure 2 shows the global spatial distribution of student outflows and inflows (logged) over the past two decades. The sources cluster in East and Southeast Asia, and the destinations cluster in North America, Western Europe, Australia, Japan, and Russia.

These sizeable student flows produce significant economic and political effects in home and host countries. Trade in education has become one of the largest service sectors in terms of GDP and employment shares for many host economies (Boag 2011; Crawford 2009; Douglass et al., 2011). In addition, foreign graduate students contribute to future patent applications

Figure 2: Numbers of International Student Outflows and Inflows (logged), 1999-2017



Data Source: UNESCO (2019) for 198 home and 155 host countries

and future patents awarded to research institutions; a 10% increase in the number of foreign graduate students raises patent applications by 4.5% (Chellaraj et al., 2008). Meanwhile, international students often stay after graduation and transition into working immigrants, with stay rates ranging between 15% and 35% for most advanced host economies (OECD 2009). A serious consequence is the loss of skilled labor or the “brain drain” in many African, Latin American, and Asian home countries. Among the 1,076,000 Chinese students who studied abroad between 1978 and 2006, only 275,000 returned (Cai 2008). As yet another critical consequence, international students educated in democratic countries are associated with democratization in their home countries (Chankseliani 2018; Gift and Krcmaric 2017; Spilimbergo 2009). Therefore, it is crucial to investigate student flows’ driving forces because of the large numbers of international students and their significant economic and political consequences.

What Do We Know About the Drivers of Student Flows?

A small but growing literature explores the determinants of student flows in various empirical settings. One type of study focuses on prominent destination countries. For example, Wei (2013) studies student flows from 48 home countries to the US from 1999 to 2008, and Bessey (2012) investigates student flows from 172 home countries to Germany from 1997 to 2002. Another type of study has a regional or select group focus and covers only one or a few years. For example, Van Bouwel and Veugelers (2013) study student flows among 31 European countries for 2007; Tay (2014) looks at student flows between 21 home and 50 host countries for 2010; Beine et al. (2014) examine student flows between 180 home countries and 13 OECD host countries from 2004 to 2007; Abbott and Silles (2016) investigate student

flows between 38 home and 18 host countries from 2005 to 2011. As a rare exception, Perkins and Neumayer (2014) have a global coverage but only for a few years, analyzing student flows between 151 home and 105 host countries from 2004 to 2009.

These studies identify various determinants of student flows. Nearly all studies expect that distance raises the cost of studying abroad and find that it has a significant negative effect on student flows. Besides distance, several studies (Beine et al., 2014; Perkins and Neumayer 2014; Tay 2014) find that common language, shared religion, colonial linkages, and a strong network of migrants in the destination country encourage student flows. Several scholars argue that the relative wealth between home and host countries has a significant impact. Student flows tend to be larger between poor origin and rich destination countries. Higher wages and more work opportunities in rich countries attract student inflows, and host countries also want to attract and keep talented and skilled labor. However, empirical evidence is mixed. Abbott and Silles (2016) find that the host-home GDP per capita ratio has a positive but statistically insignificant effect. Perkins and Neumayer (2014) show that the same ratio has a significant negative effect, indicating that a larger average home-host income gap decreases student flows.

In sum, existing studies focus on geographic, social, and economic variables, paying little attention to political factors. The only exception, to the best of our knowledge, is Perkins and Neumayer (2014). Using POLITY data, they estimate the effects of host democracy and home democracy on student flows and find that both democracy variables have a statistically significant negative effect. Nevertheless, they treat regime variables as statistical controls only and do not provide detailed theoretical explanations. Moreover, they do not analyze the differences among dyadic regime-type pairs.

How Does Regime Type Influence Student Flows?

A large body of literature in international relations finds that democratic dyads experience greater bilateral trade cooperation than mixed dyads (Dixon and Moon 1993; Bliss and Russett 1998; Morrow et al. 1998; Mansfield et al. 2000; Mansfield et al. 2002). To explain the empirical pattern, scholars propose several mechanisms. First, because democratic dyads experience more peaceful relations with less negative national security externality from trade, democratic leaders encourage trade with other democracies. Thus, firms perceive more security against war, threats of war, and sanctions in democratic dyads than in others (Bliss and Russett 1998). Second, democratic countries have limited government, leading to a stronger rule of law and lower political risk of arbitrary treatment for businesses (Morrow et al., 1998). Third, in a democracy, a trade agreement signed by the chief executive must be ratified by the legislature. The credible threat of legislative veto forces chief executives in two democracies to agree on lower, mutually acceptable trade barriers (Mansfield et al., 2000). Fourth, democratic leaders must win enough votes to stay in office. Since the median voter prefers lower trade barriers than protectionist special interests, to stay in office, the leaders have to convince voters that they are not setting trade policies to please special interests. Trade agreements between democracies, which lower trade barriers for both sides and are also constantly monitored, help inform voters and lead to more cooperation between democracies (Mansfield et al., 2002). Do these mechanisms, which scholars developed to explain trade in goods, apply to student flows, a form of trade in services? Since students are not goods, these mechanisms are not readily applicable except for extensions of the national security- and median voter-related mechanisms. In this section, we will build our argument on how

Table 2: Regime Types and Directions of Student Flows

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

regime type influences student flows.

We begin with a conception of regime-type pairs between home/origin and host/destination countries. As shown in Table 2, students could move from one democratic home to another democratic host ($D \rightarrow D$, democratic dyad), or to another autocratic host ($D \rightarrow A$, DA mixed dyad), or from one autocratic home to a democratic host ($A \rightarrow D$, AD mixed dyad), or to another autocratic host ($A \rightarrow A$, autocratic dyad). We aim to explain the variations in student flows among these four regime-type pairs. We argue that regime type influences student flows through two main mechanisms: impacting policy restrictions and affecting education in general and higher education in particular.

Regime Type and Policy Restrictions

Our argument’s fundamental premise is that home/host governments employ policy restrictions to regulate student outflows/inflows. Specific policy restrictions apply to four types of education services: consumption abroad, commercial presence, cross-border supply, and natural persons’ presence (Nguyen-Hong and Wells 2003). Consumption abroad means that a citizen from one country studies in another country. Commercial presence refers to that one country’s educational organizations build local branches in another country. Cross-border supply includes distance education overseas, online courses, or the use of titles or brands of one country’s university by another country’s educational organization. Natural persons’

presence refers to that one country hires foreigners to deliver education services inside the country. What is directly relevant to our analysis is that a student who leaves a home country to study in a host must acquire both home and host governments' approval—a passport to exit the home and a visa to enter the host.

We argue that regulatory barriers for exit and entry vary in response to (1) political tension between home and host countries, (2) politically sensitive or democratization effects of student flows, and (3) the extent to which citizens hold leaders accountable. These conditions lead to expectations regarding variations in student flows among democratic, autocratic, and mixed dyads.

Political tension between countries often causes international students to be viewed with suspicion by both governments. On the one hand, the home government may recruit outgoing students to spy on the host country for intelligence or trade secrets (Golden 2017). This possibility causes the host government to be particularly suspicious of students from rival countries. For example, Chinese students who study in the US had to confront growing suspicion and scrutiny in recent years, as reflected in President Trump's quote, "almost every student that comes over to this country is a spy" (Redden 2018). On the other hand, the host government may recruit incoming students to spy on their home country, as widely reported about US intelligence agencies (Golden 2017; Johnson 2019). Thus, international students could be treated as potential security threats by either country and face restrictions. Such restrictions are more likely when political tension runs high, such as in the Sino-US relations during the last several years. The *National Security Strategy of the United States of America*, released in December 2017, specifically says that the Trump Administration will consider "restrictions on foreign STEM students from designated countries to ensure

that intellectual property is not transferred to our competitors” (p.22).⁶ On May 29, 2020, President Trump issued a presidential proclamation to bar the entry of Chinese students involved in China’s “military-civil fusion strategy” into US graduate programs (Anderson 2020).

Political tension tends to be high between politically dissimilar countries due to their differences in handling domestic affairs such as human rights or regime change, but low between politically similar countries because of the absence of those differences (Werner 2000; Bennett 2006). Hence, both democratic and autocratic dyads tend to experience lower political tension than mixed dyads. What supports this claim for democratic dyads is the large body of evidence demonstrating the empirical regularity of dyadic democratic peace and the robust positive association between democratic dyads and bilateral trade flows in goods discussed earlier. As to supporting evidence for autocratic dyads, a reasonable amount of research demonstrates the presence of some dyadic autocratic peace, even though the effect is not as strong as democratic peace (Peceny et al., 2002; Bennett 2006; Weeks 2008).

Another crucial reason mixed dyads are distinct from democratic or autocratic dyads is that student flows produce politically sensitive or democratization effects. Autocratic leaders are often concerned that international students, inflows and outflows, could generate a significant push for democratization, bringing about regime change and leadership turnover. Such concerns over regime change and office loss may lead to more restrictions over student flows to democratic hosts and from democratic homes. Such concerns, in contrast, are not as important or relevant for democratic or autocratic dyads.

Empirical evidence substantiates the connection between student flows and democratiza-

⁶<https://trumpwhitehouse.archives.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>

tion. Spilimbergo (2009) shows that the number of students that studied in democracies has a positive effect on democratization in those students' autocratic home countries. Chanke-seliani (2018) finds that those former Soviet Eurasia countries that sent many students to study in Western democracies have higher levels of democratic development. Those that sent more students to study in Russia achieve lower levels of democratic development.

Gift and Krcmaric (2017) find that leaders who received education at Western universities are more likely to democratize. Studying abroad could lead students to absorb democratic values, norms, and practices through courses, extracurricular activities, and social interactions. These students often spread democratic values and norms to their home countries. Meanwhile, when students and scholars from democracies come to study and teach in autocracies, they often expose local students, faculty, and people to democratic values and norms. More generally, cross-border linkages and ties to Western democracies help promote democratic values, norms, and practices (Levitsky and Way 2006).

Therefore, relative to mixed dyads, democratic and autocratic dyads have lower political tension. Moreover, they do not have to be as concerned about the democratization effects of student flows. Consequently, they are likely to adopt lower policy restrictions.

Do democratic and autocratic dyads differ in terms of policy restrictions? We argue that democratic dyads impose lower restrictions for two reasons. First, relative to those in an autocracy, citizens in a democracy can more readily hold leaders accountable, making their push for lower outflow restrictions more likely to succeed. In a democracy, citizens have more political rights and civil liberties, including the right to vote and the freedom of association and expression. Politicians need to win enough votes during regular free and fair elections to hold executive and legislative offices (Dahl 2008). To the extent that citizens

view the pursuit of higher education overseas as a part of their human rights and freedom,⁷ they will demand elected leaders lower outflow restrictions, and they are more likely to get their demands met through political participation and multiparty competition (Bueno de Mesquita et al., 2005).

In contrast, elections in an autocracy, even if held, are not as free and fair such that citizens can hold their leaders accountable as effectively. Autocratic leaders are more responsive to a small winning coalition and rule by narrow elite control (Linz 2000). Thus, autocratic leaders tend to lift restrictions in an ad hoc manner to privilege key supporters but maintain outflow restrictions for the broad populace to exercise effective control. Second, when two democracies reduce outflow restrictions, reciprocal reductions in the dyad's inflow restrictions become more likely (Mansfield et al., 2002). This type of reciprocal reduction is not as likely in autocratic dyads. As a result, democratic dyads should have lower restrictions over bilateral student flows than autocratic ones.

In sum, democratic and autocratic dyads should have the lowest and second-lowest flow restrictions among the four regime-type pairs. However, the ranking between the two mixed dyads is unclear.

Regime Type and Quality Higher Education

Our argument's second fundamental component is that democratic countries provide better public education, particularly secondary schooling, raising the demand for quality higher education. Such demand contributes to both the pursuit of study abroad and a rise in

⁷The UN Universal Declaration of Human Rights (UDHR), adopted by the UN General Assembly in 1948, asserts in Article 26, "Everyone has the right to education" including higher education; in Article 13, "Everyone has the right to leave any country, including his own, and to return to his country."

high-quality universities at home. Hence, democratic countries tend to send more domestic students abroad and attract more international students to come in.

A growing body of literature has established the link between democracy and education. Lake and Baum (2001) argue that even though the state monopolizes the legitimate use of force and hence, the production of public services, democracies and autocracies face different levels of constraints in terms of the barriers to exit domestic political competition and the costs of political participation for citizens. Low exit barriers and participation costs reduce monopoly rents in democracy, inducing the government to provide more public services at lower prices. In contrast, the autocratic state provides fewer public services at higher prices. Lake and Baum (2001) find supporting evidence in both public health and education. Specifically for education, democracy reduces adult illiteracy and raises gross enrollment ratios for primary, secondary, and tertiary schools in a cross-national analysis of 38 countries.

In an analysis of 130 countries over the 1980-1996 period, Deacon (2009) finds that democracies provide more public schooling and have higher secondary school enrollment ratios than dictatorial governments. Rudra and Haggard (2005) find among 57 developing countries that democracy increases gross primary, secondary, and tertiary enrollment. Trade openness also increases gross primary, secondary, and tertiary enrollment, but only in democracies and not autocracies.

Recently, Paglayan (2021) advances a more nuanced argument regarding the link between democratization and education. By empowering the median voter, democratization has a positive impact on education. However, whether democratization improves primary, secondary, or tertiary schooling depends on whether the median voter already has access to the specific type of schooling before democratization. Democratization leads to improved

schooling only if the median voter lacks prior access to that type. Empirical analysis of 109 countries over 200 years shows that democratization raises primary school enrollment rates when the majority of children lack prior access to primary schooling and that when they do not lack prior access, democratization improves enrollment in secondary education instead.⁸

Overall, previous studies uncover relatively robust evidence regarding the positive impact of democracy on secondary education, which has critical downstream implications. As democracy brings about better secondary schooling, more students become capable of and interested in pursuing higher education. That more students pursue tertiary education raises the demand for high-quality universities at home. Since democratic governments are held accountable electorally and respond to such demand, universities will likely increase. As the number of universities rises, competition among them also increases, resulting in many high-quality universities in democratic countries. Consequently, democratic countries are likely to have more and better universities, attracting more international students.

The positive impact of democracy on secondary schooling also may raise the demand for studying in foreign universities. Scholastic competence and interest could motivate more students to seek education abroad since universities differ in their strengths. Since democratic countries have more and better universities, it is natural that more students from democratic homes seek to study in other democratic hosts.

In contrast, since autocratic countries have lower secondary school enrollment levels on average, the demand for higher education is lower than in democratic countries. Relative to democracies, autocratic countries tend to have fewer high-quality universities. As a result,

⁸An extensive related literature establishes that democratic governments spend more in public education, but debates whether spending favors primary, secondary, or tertiary education and how globalization affects the link between democracy and education spending (e.g., Brown and Hunter 2004; Avelino et al., 2005; Stasavage 2005; Ansell 2008)

autocratic countries will attract fewer international students, and domestic students are more likely to pursue education in democracies than in other autocracies.

Relative to the autocratic dyad, the autocratic home-democratic host dyad should have higher student flows. All else equal, the democratic host offers more and better universities for the students from the autocratic home country. Meanwhile, relative to the autocratic dyad, the democratic home-autocratic host dyad should have lower student flows. All else equal, the autocratic host appeals less to students from the democratic home, which has more and better universities.

Therefore, more and better universities in democratic countries likely generate the highest student flows between democracies among the four regime pairs. The autocratic home-democratic host dyad likely generates student flows lower than the democratic dyad but more than the autocratic dyad. Finally, the autocratic dyad likely has student flows higher than the democratic home-autocratic host dyad.

As a caveat, while our argument suggests that democratic countries should have more and better universities on average, it is plausible that particular democratic countries perform poorly and that certain autocratic countries make heavy investments in higher education and have many highly ranked universities. That certain autocratic countries perform well does not make our prediction about average patterns any less valid. It does, however, make finding supporting evidence for our argument more difficult.

Hypotheses

Among the four dyadic regime pairs: democratic dyad (DD), autocratic dyad (AA), democratic home-autocratic host (DA), and autocratic home-democratic host (AD), our argument

identifies two rank orderings in terms of dyadic student flows. The impact of regime type on government restrictions leads to the following expected rank ordering:

$$DD > AA > AD \approx DA$$

In contrast, the impact of regime type on education leads to a somewhat different rank ordering:

$$DD > AD > AA > DA$$

Combining these two rank orderings, we formulate the following hypotheses:

Hypothesis 1: Democratic dyads have the highest student flows.

Hypothesis 2: Democratic home-autocratic host dyads have the lowest student flows.

Hypothesis 3: Autocratic dyads and autocratic home-democratic host dyads have intermediate levels of student flows. Their difference is indeterminate, depending on the relative strength between the policy restriction effect and the quality university attraction effect.

Research Design

Data and Variables

Our empirical analysis is based on a sample of 152 origin and 107 destination countries from 1999 to 2017. The unit of analysis is directed dyad year. Descriptive statistics and the correlation matrix are in the supplemental appendix.

The dependent variable is the annual number of students from a home country enrolling in higher education institutions in a host country. Data are collected from the UNESCO

Institute for Statistics (UIS).⁹ The data are not without limitations, as noted by Perkins and Neumayer (2014). First, UNESCO data includes only degree-seeking students, excluding those on short-term exchange programs. Second, most countries define international students based on citizenship, but a few classify them based on residence, creating some inconsistency and noise in data. Third, two important countries—China and Singapore—only provide data on outflows but not inflows. Despite these shortcomings, UNESCO data have the broadest spatial and temporal coverage relative to other sources like OECD statistics.

To test our hypotheses, we need to separate democratic dyad (both democracies), autocratic dyad (both autocracies), democratic home-autocratic host dyad, and autocratic home-democratic host dyad into mutually exclusive categories. To do so, we take several steps. First, from the widely used and recently updated POLITY5 Project (Marshall and Gurr 2020), we take the POLITY2 variable. It combines institutionalized democracy (DEMOC) and institutionalized autocracy (AUTO), reflecting the openness and competitiveness of executive recruitment, constraints on the chief executive, and the competitiveness of political participation, as a single measure of democracy ranging from -10 to +10. Next, following a widely used practice in previous studies (e.g., Dixon 1994), a country is coded as democracy (=1) if its POLITY2 score is greater than or equal to +6, and as autocracy (=0) otherwise. Thus we construct two dummy variables: *Dem_home* and *Dem_host*. Finally, with these two variables, we create an interaction term: *Dem_home*Dem_host*.

⁹Original data are downloaded from <http://data.uis.unesco.org/Index.aspx> during April 2020. 2017 is the latest year with complete data.

A simple equation illustrates how we use these variables to test our hypotheses.

$$Y_{ijt} = \beta_0 + \beta_1 Dem_home_{it-1} + \beta_2 Dem_host_{jt-1} + \beta_3 Dem_home_{it-1} * Dem_host_{jt-1} + \beta X_{ijt-1} + \varepsilon_{ijt} \quad (1)$$

Suppose Y_{ijt} represents student flows from home country i to host country j during year t ; X_{ijt-1} represents control variables from year $t-1$; ε_{ijt} represents random error. Dem_home_{it-1} equals 1 for a democracy home i in year $t-1$, and 0 for an autocracy home i ; Dem_host_{jt-1} equals 1 for a democracy host j in year $t-1$, and 0 for an autocracy host j .

The equation includes essentially three regime type dummy variables from year $t-1$: Dem_home_{it-1} , Dem_host_{jt-1} , and $Dem_home_{it-1} * Dem_host_{jt-1}$, with the excluded reference category being autocratic dyad (i.e., $Dem_home_{it-1} = Dem_host_{jt-1} = 0$). Therefore,

- β_3 captures the difference in student flows between democratic dyad (i.e., $Dem_home_{it-1} = Dem_host_{jt-1} = 1$) and autocratic dyad
- β_1 captures the difference between democratic home-autocratic host dyad (i.e., $Dem_home_{it-1} = 1, Dem_host_{jt-1} = 0$) and autocratic dyad
- β_2 captures the difference between autocratic home-democratic host dyad (i.e., $Dem_home_{it-1} = 0, Dem_host_{jt-1} = 1$) and autocratic dyad

According to our hypotheses, β_3 should be statistically significant and positive, β_1 should be statistically significant and negative, and the sign of β_2 is indeterminate.

Control variables are selected based on previous empirical studies of student flows and bilateral trade, with modifications. The GDP per capita variables of both countries are log-transformed. Both variables should have a positive effect on student flows. Home per capita

income reflects the sending country's income and wealth, affecting the resources available to support study abroad. Host per capita income reflects the recipient country's income and wealth, affecting the resources available for education investment and building great universities. The populations between the ages of 15 and 64 of both countries are log-transformed and should have positive effects on student flows. The home population reflects the potential demand for studying abroad, and the host population reflects the demand for more education investment and excellent universities within the country. Data on GDP per capita (measured in 2010 constant US dollars) and population are from the World Bank's World Development Indicators.

Following previous empirical studies of student flows (e.g., Abbott and Silles 2016; Perkins and Neumayer 2014; Beine et al., 2014), we also control for geographical distance weighted by the populations of home and host countries, whether two countries share a common official language, whether two countries are geographically contiguous, and whether two countries have historical colonial ties. Distance is expected to reduce bilateral student flows, whereas common language, contiguity, and colonial ties increase student flows. Data on these variables are from the CEPII project (Mayer and Zignago 2011).

Drawing on the literature on the political determinants of trade flows, we include two other variables. As noted, because traded goods can strengthen the national economy and military capabilities, trade produces security externalities. Security externalities tend to benefit a country when trading with military allies but harm the country when trading with foes (Bliss and Russett 1998; Morrow et al., 1998; Gowa and Mansfield 1993; Long 2003). Similarly, student flows also generate security externalities, as students could acquire knowledge and technological know-how and serve their home countries. Such security externalities

could be positive for military allies but negative for rivals. Thus we also control for dyadic military alliance ties and UN voting similarity. The two variables could compete with the regime-type variables to capture the underlying preference alignment between two countries. However, they help ensure that regime-type effects are not an artifact of military alliance and affinity of political relations. Both variables should have a positive effect on student flows. Data for alliance are from the Alliance Treaty Obligations and Provisions Project (ATOP) (Leeds et al., 2002), and data for UN voting are from Bailey et al. (2017).

Following Abbott and Silies (2016), we also control for whether two countries are European Union members or not. EU member countries have no visa restrictions for their nationals and provide financial assistance for studying in other member countries. Thus, two EU members should have more student flows.¹⁰

Method

Several methodological issues require clarification. The first issue concerns the estimation technique. The popular gravity model of bilateral trade flows of goods is often estimated with ordinary least squares (OLS). Empirical studies of student flows (e.g., Tay 2014; Perkins and Neumayer 2014) often utilize ordinary least squares (OLS) or negative binomial. These estimators, however, could not appropriately handle the presence of a large number of zeroes in the dependent variable. The same issue applies to our dependent variable as it is common for many directed dyads to have zero international student flow for many years. For example, in our sample, 57.8% of the directed dyad years have zero student flow.

¹⁰One might wonder if the flows of trade in goods influence the effect of regime type on student flows. In robustness tests that control for bilateral trade, reported in the supplemental appendix, the effects of regime-type variables remain robust. We do not include trade in goods in the primary reported models because it is a function of almost all other variables and appears redundant.

In a highly influential paper on the proper estimation technique for gravity models,¹¹ Silva and Tenreyo (2006) show that in the context of bilateral trade flows, when error variance is heteroskedastic, the presence of many zeroes leads to a correlation between covariates and the error term and thus, inconsistent statistical estimates. Using Monte-Carlo simulation, Silva and Tenreyo (2006) demonstrate that for such situations, the Poisson pseudo maximum likelihood (PPML) estimator, which is extended from the Poisson model and no longer restricted to count data, outperforms OLS in statistical properties. Hence, many recent empirical studies apply PPML to outcome variables which have many zeroes in data and whose error variance is heteroskedastic, including student flows (Abbott and Silles 2016; Beine et al. 2014), bilateral trade (Larch et al. 2019), and migration (Paniagua et al. 2020). Since our data exhibit similar traits, we also apply PPML in our analysis.

Silva and Tenreyo (2006) highlight two crucial points on the use of PPML. First, for the PPML estimator, the dependent variable should not be transformed with $\log(Y + 1)$ as many often do to deal with zero trade when using OLS. The transformation creates more problems than it solves for OLS. With PPML, the raw flow data should be used, which is what we do here. Second, the coefficient for a log-transformed variable on the right-hand side should be interpreted as elasticity, and the coefficient for a dummy variable should be interpreted as $[(e^{\hat{\beta}} - 1) * 100]$ percent change in Y as the dummy changes from zero to one. We will apply this rule to interpret the coefficient estimates for regime variables.

The second methodological issue concerns possible reverse causality from student flows to regime type changes or other right-hand side variables. Hence, we lag all the right-hand side variables one year behind the dependent variable.

¹¹Silva and Tenreyo (2006) has been cited over 5700 times according to Google Scholar.

The third issue concerns common shocks unique to specific years. Following convention, we include year-fixed effects in all models.

The fourth issue concerns heteroskedastic error variance and temporal dependence within dyad. Following previous research, we estimate robust standard errors clustered over dyad. Moreover, student flows often exhibit strong temporal dependence. Failure to account for temporal dependence is problematic even if standard errors are adjusted through clustering. We include the lagged dependent variable to capture the effect of temporal dependence.

Finally, our panel dataset has many cross-sections and only 20 years. Since our argument primarily concerns cross-sectional differences among regime-type pairs, we expect to find the same patterns if we treat the whole period as one cross-section. In this cross-sectional design, we take average values of the continuous variables (logged after averaging where appropriate) and keep dummy variables as dichotomous, with regime-type variables coded based on average period values. This design's advantage is to present a simple test of the hypotheses without a panel design's econometric complications.

Findings

Table 3 presents the results from four models. The first two models employ panel data, and the second two models the period-average cross-section. Model 1 includes regime variables, the lagged dependent variable, and year-fixed effects; Model 2 adds other control variables. Model 3 includes regime variables and the initial level of student flows at the beginning of the period; Model 4 adds other control variables.

Across all four models, the coefficient of the interaction term $Dem_Home * Dem_Host$ is statistically significant and positive, as expected in Hypothesis 1. Democratic dyads have

more bilateral student flows than autocratic dyads. The effect size varies depending on whether a complete set of control variables is included. Based on the four model estimates, student flows in democratic dyads are 357%, 83%, 609%, and 79% higher than in autocratic dyads. Interestingly, the substantive effects are similar between the corresponding panel and period-average full models. So the estimates largely reflect the differences *between* the two regime-type pairs. Besides, the inclusion of a complete set of controls weakens the size of the substantive effect dramatically. The smaller effect size is not surprising since many control variables like GDP per capita, alliance, and UN voting similarity are correlated with joint democracy.

Across all four models, the coefficient of *Dem_Home*, which captures the difference between democratic home-autocratic host and autocratic dyads, is statistically significant and negative, as expected in Hypothesis 2. Thus, relative to autocratic dyads, student flows from democratic homes to autocratic hosts are much smaller. In terms of substantive effects based on the four estimates, student flows from democratic homes to autocratic hosts are 68%, 59%, 81%, and 65% lower than in autocratic dyads. The substantive effects are similar between the corresponding panel and period-average full models, suggesting the estimates reflect between-dyad differences.

The coefficient of *Dem_Host*, which captures the difference between autocratic home-democratic host and autocratic dyads, is statistically significant in the first three models only. The coefficient switches from positive to negative after all the control variables are included for both panel and cross-sectional models. In terms of substantive effects based on the four model estimates, student flows from autocratic homes to democratic hosts are 48% higher, 22% lower, 88% higher, and 29% lower than in autocratic dyads. The substantive

effects differ dramatically between models with and without all control variables. There is no consistent pattern in terms of the difference between these two regime-type pairs.

Overall, these statistical results indicate that student flows are the highest in democratic dyads, the smallest in democratic home-autocratic host dyads, and hard to predict between autocratic home-democratic host and autocratic dyads.

The results for control variables are broadly consistent with previous studies of student or trade flows. Populations and GDP per capita of host and home countries have positive and significant effects in both panel and cross-sectional models, except that the effect of home GDP per capita turns insignificant in the cross-sectional model. As expected, distance has negative and significant effects; shared language, contiguity, and colonial ties have positive and significant effects. Joint EU membership does not significantly affect student flows. Like the literature on trade flows, military allies have significantly more student flows than non-allied countries. UN voting similarity positively impacts student flows in both panel and cross-sectional models.

Robustness Tests

We carry out several tests of the robustness of our findings. Table [A4](#) presents the main results for the key variables only, with full results reported in the supplementary appendix. First, we test if our findings are driven by unobserved country heterogeneity. Model 1 re-estimates Model 2 in Table 3 but controls for home- and host-fixed effects. A limitation of country fixed effects is that model estimates reflect more closely the within effect rather than the cross-sectional differences we focus on.

Second, as noted earlier, the UNESCO source only has data for China and Singapore

Table 3: Regime Type and Student Flows

	(1) Panel	(2) Panel	(3) CrossSection	(4) CrossSection
Dem_home	-1.151*** (0.175)	-0.898*** (0.164)	-1.666*** (0.286)	-1.039*** (0.238)
Dem_host	0.390* (0.213)	-0.517*** (0.167)	0.872*** (0.253)	-0.242 (0.181)
Dem_home*Dem_host	1.520*** (0.270)	0.606*** (0.206)	1.959*** (0.403)	0.583** (0.295)
Lagged dependent variable	3.000e-05*** (2.02e-06)	1.040e-05*** (2.06e-06)		
Initial student flows			1.573e-04*** (7.96e-06)	5.980e-05*** (7.74e-06)
GDP_PC_host(log)		0.794*** (0.051)		0.730*** (0.048)
GDP_PC_home(log)		0.116*** (0.040)		0.039 (0.038)
Population(15-64)_host(log)		0.703*** (0.046)		0.610*** (0.033)
Population(15-64)_home(log)		0.611*** (0.041)		0.547*** (0.048)
Distance(log)		-0.666*** (0.074)		-0.596*** (0.070)
Common language		0.864*** (0.104)		0.821*** (0.100)
Contiguity		0.453*** (0.144)		0.472*** (0.141)
Colonial ties		0.880*** (0.120)		0.946*** (0.112)
Common EU membership		-0.148 (0.150)		-0.146 (0.163)
Alliance		0.536*** (0.121)		0.751*** (0.111)
UN voting similarity		0.191*** (0.048)		0.094* (0.052)
Constant	5.049*** (0.145)	-19.699*** (1.502)	4.185*** (0.158)	-16.530*** (1.491)
<i>N</i>	165496	151928	20107	18678
Year Fixed Effect	Y	Y	-	-

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

as home, but not host countries. Models 2 and 3 re-estimate Models 2 and 4 in Table 3 but exclude China and Singapore from the sample to avoid over-representation of autocratic home countries.

Third, we test if our findings are sensitive to alternative measures of regime type. In Table 4, Models 4 and 5 re-estimate Models 2 and 4 in Table 3 using the binary measure of regime type compiled by Cheibub et al. (2010) and updated by Bjørnskov and Rode (2020), and Models 6 and 7 employ the regime type measure from the Varieties of Democracy (V-Dem) dataset Version 11.1 (Coppedge et al., 2021).

Table 4: Robustness Tests

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dem_home	-0.267* (0.153)	-0.863*** (0.164)	-1.026*** (0.238)	-0.756*** (0.195)	-0.696*** (0.197)	-1.039*** (0.178)	-1.250*** (0.222)
Dem_host	-0.530*** (0.150)	-0.584*** (0.149)	-0.434*** (0.156)	-0.472*** (0.179)	-0.270 (0.164)	-0.632*** (0.161)	-0.370** (0.160)
Dem_home*Dem_host	0.282* (0.162)	0.713*** (0.186)	0.769*** (0.269)	0.509** (0.232)	0.339 (0.245)	0.821*** (0.213)	0.863*** (0.260)
<i>N</i>	151077	149846	18432	190289	23066	174058	20911

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The coefficient of the interaction term $Dem_Home * Dem_Host$ remains positive and statistically significant in all but Model 5. The coefficient of Dem_Home , capturing the difference between democratic home-autocratic host and autocratic dyads, remains negative and statistically significant in all models. The coefficient of Dem_Host , capturing the difference between autocratic home-democratic host and autocratic dyads, also remains negative and statistically significant in all but Model 5. Overall, our primary findings remain largely robust.

Tests of Causal Mechanisms

Democracy and Policy Restrictions on Student Flows

Our theory's critical causal link is that democracies have lower restrictions on student flows than autocracies. We provide a direct test of this premise.

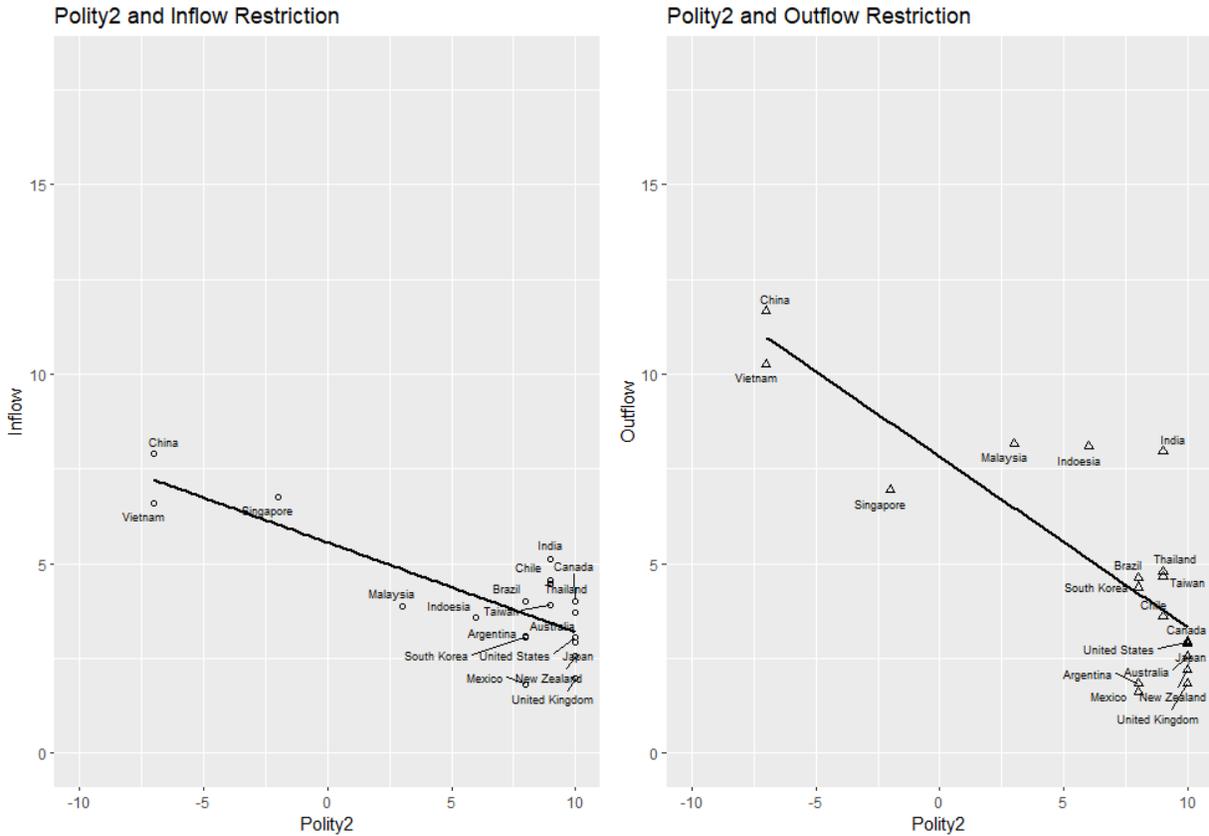
The dependent variable is the index of policy restrictions on outflow or inflow. As discussed earlier, restrictions over education services fall into four categories: consumption abroad, commercial presence, cross-border supply, and natural persons' presence. In a pioneering WTO project, Nguyen-Hong and Wells (2003) collect data on restrictions on these four categories for 19 countries and construct separate restriction indices for inflow and outflow. Each index ranges from 0 to 18, with larger values indicating more restrictions.¹² While these 19 countries or regions constitute a small sample of the world, they are essential in trade in education services, accounting for nearly 45% of total outflows and nearly 68% of total inflows between 1999 and 2017. In our sample, about 22% percent of directed dyad years involve at least one of the 19 countries or regions. Therefore, our analysis based on this small sample is meaningful.

The key independent variable is POLITY2 as a measure of democracy. As noted, POLITY2 ranges from -10 to +10, with higher values indicating higher levels of democracy. For estimation, we apply OLS with robust standard errors. Our argument suggests that POLITY2 have a negative effect on student flow restrictions.

Figure 3 displays two scatter plots for POLITY2 and the two restriction indices, with

¹²These 19 countries or regions include Argentina, Australia, Brazil, Canada, Chile, China, Taiwan, India, Indonesia, Japan, South Korea, Malaysia, Mexico, New Zealand, Singapore, Thailand, United Kingdom, United States, and Vietnam.

Figure 3: Democracy and Restrictions on Student Flows



Data Source: Nguyen-Hong and Wells (2003)

fitted regression lines. The downward sloping regression lines indicate that both inflow and outflow restrictions are negatively correlated with democracy. Specifically, China has the highest inflow and outflow restrictions, followed by two autocratic countries—Singapore and Vietnam. In contrast, democratic regimes like the US, UK, and New Zealand have much lower restrictions.

Table 5 presents the model results. As expected, POLITY2 has statistically significant and negative effects on outflow and inflow restrictions. The higher the level of a country’s democracy, the lower its outflow and inflow restrictions. Notably, POLITY2 accounts for over 60% of the variations in outflow and inflow restrictions, even after controlling for GDP

per capita. Thus, even though a country’s development level negatively affects student flow restrictions, the effects are relatively small compared to those of democracy.

Table 5: Democracy and Restrictions on Student Flows

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

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Democracy and National Share of Top Universities

Another fundamental premise of our theory is that democracies are more likely to produce high-quality universities that attract international students. We also provide a test of this premise.

The dependent variable measures a country’s share of the world’s top 400 universities, based on the Times Higher Education World University Ranking 2014 -2015.¹³ The internationally renowned Times ranking, built on 13 performance indicators in teaching, research, knowledge transfer, and international outlook, is widely consulted by students and other clients. As a robustness check, an alternative measure employs data for the top 500 universities ranked by the Center for World University Rankings (CWUR) in 2015.¹⁴ CWUR, a

¹³<https://www.timeshighereducation.com/world-university-rankings/2015/world-ranking>

¹⁴<https://cwur.org/2015.php>

non-profit organization, provides national governments and universities with policy advice and consulting services on higher education. The Times and CWUR rankings are highly correlated (correlation=0.98).

The key independent variable is a country's POLITY2 score, and the control variable is the country's logged GDP per capita. For estimation, we apply OLS with robust standard errors. Our argument suggests that POLITY2 positively affects a country's share of top-ranked universities.

Table 6 presents the model results. As expected, POLITY2 has a statistically significant positive effect on the national share of top universities for both Times and CWUR rankings. After controlling for GDP per capita, the effect of POLITY2 becomes weaker though it remains statistically significant and positive. Thus, the more democratic a country is, the larger its share of the world's top universities.

Table 6: Democracy and Share of Top Universities

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

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Conclusion

Although education trade has become one of the largest service sectors for many economies and student flows have significant ramifications, little political science research explores this emerging phenomenon's drivers. In this article, we fill this gap by investigating the impact of regime type on student flows. Our research makes several noteworthy contributions.

We offer a new, coherent argument about how regime type influences student flows. Our empirical analysis employs more extensive sample coverage than previous studies. Hence, our research makes valuable theoretical and empirical contributions to the literature on student flows. The politics of international education is a potentially fruitful new research agenda.

Our research draws on some arguments from the literature on the political determinants of trade, and consistent with that literature, we demonstrate that democratic dyads experience more trade in education services relative to mixed pairs. However, our research differs from that literature in significant ways. First, because students are not goods, our causal mechanisms are more different than similar. Second, we uncover more subtle patterns by distinguishing the effects among four regime-type pairs. Third, since education trade is part of international trade, our research is complementary to the literature on trade in goods, depicting a fuller picture of the political determinants of trade.

Our research also contributes to the literature on migration. Student flows can promote migration in two ways. First, international students themselves are likely to continue working and living in host countries after graduation. Around 15% to 35% of international students reside and work in the United States and eight European countries (Suter and Jandl 2006). Based on the Survey of Earned Doctorates (SED) of the National Science Foundation (NSF),

Kim et al. (2011, 149) show that among around 20,000 doctorate recipient respondents in the US, 49.5% stayed in the US in the 1980s, this number rose to 57.1% in the 1990s, and 66.1% in the 2000s. Second, international students help attract emigrants from their home countries through personal networks, such as families and friends (Leblang 2010; Dreher and Poutvaara 2011). Hence, in addition to its direct effect, as shown by Fitzgerald et al. (2014), politics also indirectly influences migration via student flows.

Our research also dovetails with the growing literature on the impact of democracy on education. Building on the finding that democracy promotes secondary education, we explore the implications for higher education and student flows. We contribute valuable and complementary insights in terms of the link between democracy and education.

Our research should be of interest to policymakers who seek to regulate education globalization and businesses seeking to take advantage of it. As policy restrictions are an integral part of our theory and appear to vary systematically across countries, policymakers need to understand better their constraints and their international counterparts in contemplating policy restrictions. Likewise, businesses need to be aware of the policy risks of stepping into the fast-growing trade in education because leaders may change restrictions in response to international and domestic political pressures.

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Online Supplemental Appendix

- Table A1: Descriptive Statistics
- Table A2: Correlation Matrix
- Table A3: Add Bilateral Trade as a Control Variable
- Table A4: Full Results of Robustness Tests in Table 4

Table A1: Descriptive Statistics

	Mean	SD	Obs.	Min	Max
Student flow	283.98	3017.67	151928	0	321624
Dem_home	0.58	0.49	151928	0	1
Dem_host	0.74	0.44	151928	0	1
GDP_PC_host(log)	9.32	1.36	151928	5.39	11.61
GDP_PC_home(log)	8.47	1.50	151928	5.39	11.63
Population(15-64)_host(log)	15.86	1.44	151928	12.45	20.59
Population(15-64)_home(log)	15.69	1.55	151928	12.28	20.72
Distance(log)	8.60	0.81	151928	4.74	9.89
Common language	0.08	0.28	151928	0	1
Contiguity	0.02	0.15	151928	0	1
Colonial ties	0.02	0.14	151928	0	1
Common EU membership	0.05	0.21	151928	0	1
Alliance	0.27	0.44	151928	0	1
UN voting similarity	1.10	0.79	151928	1.19e-07	4.62

Table A2: Correlation Matrix

Variables	Dem_home	Dem_host	GDP_PC_host	GDP_PC_home	Population(15-64)_host	Population(15-64)_home	Distance	comlanguage	contiguity	colony	comEU	Ally	UNvoting
Dem_home	1.00												
Dem_host	-0.00	1.00											
GDP_PC_host	0.01	0.43	1.00										
GDP_PC_home	0.40	0.00	0.00	1.00									
Population(15-64)_host	0.00	0.06	-0.05	0.01	1.00								
Population(15-64)_home	0.05	0.00	0.01	-0.07	-0.00	1.00							
Distance	0.03	0.02	-0.05	-0.07	-0.06	-0.06	1.00						
Comlanguage	-0.03	-0.02	-0.03	-0.05	-0.09	-0.09	-0.09	1.00					
Contiguity	-0.01	-0.02	-0.01	-0.01	0.06	-0.34	0.09	0.09	1.00				
Colony	0.04	0.05	0.07	0.05	0.07	-0.06	0.14	0.10	0.10	1.00			
ComEU	0.12	0.11	0.14	0.15	0.01	-0.27	-0.03	0.10	0.22	0.05	1.00		
Ally	0.08	0.06	0.06	0.10	0.03	-0.59	0.16	0.25	-0.08	0.08	0.25	1.00	
UNvoting	0.05	0.10	0.19	0.15	0.11	0.09	-0.09	-0.13	-0.28	0.13	-0.28	-0.28	1.00

Table A3: Add Bilateral Trade as a Control Variable

	(1) Panel	(2) CrossSection
Dem_home	-0.860*** (0.180)	-1.027*** (0.210)
Dem_host	-0.339* (0.185)	-0.189 (0.178)
Dem_home*Dem_host	0.598*** (0.223)	0.712*** (0.260)
Lagged dependent variable	8.66e-06*** (2.05e-06)	
Initial student flows		5.12e-05*** (8.05e-06)
GDP_PC_host(log)	0.438*** (0.058)	0.328*** (0.047)
GDP_PC_home(log)	-0.394*** (0.065)	-0.434*** (0.047)
Population(15-64)_host(log)	0.221*** (0.075)	0.148*** (0.058)
Population(15-64)_home(log)	0.125* (0.064)	0.085* (0.046)
Distance(log)	-0.198* (0.103)	-0.196** (0.080)
Common language	0.707*** (0.130)	0.640*** (0.094)
Contiguity	0.111 (0.157)	0.119 (0.127)
Colonial ties	0.668*** (0.137)	0.768*** (0.104)
Common EU membership	-0.284* (0.158)	-0.278* (0.166)
Alliance	0.468*** (0.122)	0.582*** (0.102)
UN voting similarity	0.119** (0.056)	0.078 (0.054)
Bilateral trade(log)	0.531*** (0.060)	0.527*** (0.047)
Constant	-10.216*** (1.556)	-7.010*** (1.274)
<i>N</i>	88986	15820
Year Fixed Effect	Y	-
Home Fixed Effect	N	-
Host Fixed Effect	N	-

Robust standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Full Results of Robustness Tests in Table 4

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dem_home	-0.267* (0.153)	-0.863*** (0.164)	-1.026*** (0.238)	-0.756*** (0.195)	-0.696*** (0.197)	-1.039*** (0.178)	-1.250*** (0.222)
Dem_host	-0.530*** (0.150)	-0.584*** (0.149)	-0.434*** (0.156)	-0.472*** (0.179)	-0.270 (0.164)	-0.632*** (0.161)	-0.370** (0.160)
Dem_home*Dem_host	0.282* (0.162)	0.713*** (0.186)	0.769*** (0.269)	0.509** (0.232)	0.339 (0.245)	0.821*** (0.213)	0.863*** (0.260)
Lagged dependent variable	6.58e-06*** (1.69e-06)	2.95e-05*** (5.91e-06)		1.04e-05*** (2.05e-06)		1.05e-05*** (2.04e-06)	
Initial student flows			7.78e-05*** (8.68e-06)		6.04e-05*** (7.64e-06)		5.97e-05*** (7.35e-06)
GDP_PC_host(log)	1.611*** (0.305)	0.709*** (0.048)	0.674*** (0.044)	0.783*** (0.049)	0.723*** (0.047)	0.819*** (0.051)	0.741*** (0.048)
GDP_PC_home(log)	0.045 (0.133)	0.131*** (0.047)	-0.012 (0.041)	0.111*** (0.039)	0.018 (0.037)	0.131*** (0.040)	0.054 (0.039)
Population(15-64)_host(log)	0.137 (0.302)	0.680*** (0.035)	0.624*** (0.031)	0.695*** (0.044)	0.597*** (0.032)	0.700*** (0.044)	0.614*** (0.031)
Population(15-64)_home(log)	1.175*** (0.323)	0.442*** (0.034)	0.475*** (0.033)	0.604*** (0.039)	0.529*** (0.047)	0.610*** (0.040)	0.541*** (0.046)
Distance(log)	-1.160*** (0.065)	-0.664*** (0.067)	-0.660*** (0.055)	-0.672*** (0.072)	-0.612*** (0.069)	-0.680*** (0.072)	-0.615*** (0.066)
Common language	1.230*** (0.120)	0.586*** (0.150)	0.728*** (0.114)	0.836*** (0.104)	0.802*** (0.100)	0.840*** (0.102)	0.794*** (0.097)
Contiguity	0.255* (0.136)	0.523*** (0.134)	0.437*** (0.136)	0.468*** (0.145)	0.500*** (0.143)	0.422*** (0.140)	0.443*** (0.136)
Colonial ties	0.759*** (0.138)	1.045*** (0.101)	0.985*** (0.117)	0.934*** (0.120)	1.012*** (0.112)	0.889*** (0.117)	0.943*** (0.108)
Common EU membership	-0.010 (0.140)	-0.216 (0.141)	-0.125 (0.168)	-0.183 (0.165)	-0.205 (0.178)	-0.147 (0.150)	-0.144 (0.163)
Alliance	0.206** (0.088)	0.450*** (0.113)	0.755*** (0.101)	0.576*** (0.121)	0.840*** (0.111)	0.533*** (0.119)	0.733*** (0.109)
UN voting similarity	0.030 (0.043)	0.141*** (0.048)	0.092* (0.055)	0.226*** (0.048)	0.162*** (0.051)	0.227*** (0.047)	0.135*** (0.051)
Constant	-22.776*** (8.063)	-15.765*** (1.238)	-14.060*** (1.096)	-19.396*** (1.475)	-15.823*** (1.481)	-19.880*** (1.466)	-16.550*** (1.417)
<i>N</i>	151077	149846	18432	190289	23066	174058	20911
Year Fixed Effect	Y	Y	-	Y	-	Y	-
Home Fixed Effect	Y	N	-	N	-	N	-
Host Fixed Effect	Y	N	-	N	-	N	-

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$