

The Uneven Decline of Students from China in U.S. Higher Education

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Motivation

- **U.S.-China tensions reshaping globalization**

- ▶ Decoupling (First Trump)
- ▶ “Small yard, high fence” (Jake Sullivan, NSA)
- ▶ COVID-19
- ▶ Trade wars (Second Trump)

~→ One of the most critical recent developments in the global economy

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~> To what extent & how have tensions → cross-border people flows?

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- ▶ Scientific knowledge production & collaboration
- ▶ Local labor markets & the broader economy

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- ▶ Entry barriers, negative political climates, lower job prospects
- ▶ Implications at different levels: national, state, institution, field

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- ▶ Institution characteristics

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- ▶ $\downarrow$ CHN sensitive-field Ph.D. students by $\approx$ 40%

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- 2 The Effects of Geopolitics
- 3 Data & Measures
- 4 Students from China vs. The Rest of the World
- 5 The Effect of Tensions on Sub-national Allocations
- 6 The Effect of Tensions on Inflows in Sensitive Fields

Increased U.S.-China Tensions Since 2018

① **U.S.-China trade war** (March 2018—)

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- ▶ Investigations & prosecutions

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3 **National Institutes of Health (NIH) investigations** (Aug. 2018—)

- ▶ Investigation of scientists about foreign funding
- ▶ As of Jul 2021, involved 93 institutions and 214 scientists
- ▶ Funding suspension, job termination, criminal investigations

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4 **Pressure on student visas from China** (Oct. 2018—)

- ▶ Oct. 2018: *Financial Times* story: Trump considers bans
- ▶ 2020: Trump limits visas for PLA institution-affiliated CHN students
- ▶ 2023: Florida restricts public institutions from hiring CHN students

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How Geopolitics Shapes International Student Inflows

① U.S. demand side: increased entry barriers

- ▶ Restrictions on students' past institutions
- ▶ Additional screening for sensitive fields ↑ visa delays or denials
- ▶ More restrictions on access to export-controlled tech in labs

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- ~> Students/departments may hedge where tensions are particularly salient (public institutions, red states)

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An Original Dataset

1 International Students

- ▶ FOIA of all F-1/M-1 student records in SEVIS, 2003-2021
≈ 6 mil. unique students, 9.2 mil. student-school-program records
- ▶ Info on students' country, school, program major, start/end, etc.
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2 Sensitive Fields

- ▶ 16 Critical Fields in State Department's Technology Alert List
- ▶ Provides guidance for consular officers adjudicating visas
- ▶ Classify CIP 6-digit fields ($n = 2325$) using description similarity

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- ▶ Fuzzy match institution names to FOIA schools, manual check all
- ▶ Institution-level characteristics: Public vs. Private

→ Fine-grained data: all students by origin, level, field, institution, year

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- ↪ Enables a wide variety of design-based tests

I-20 Form

Department of Homeland Security
U.S. Immigration and Customs Enforcement

I-20, Certificate of Eligibility for Nonimmigrant Student Status
OMB NO. 1653-0038

SEVIS ID: N0004720633

SURNAME/PRIMARY NAME Sample	GIVEN NAME Student	Class of Admission F-1 ACADEMIC AND LANGUAGE
PREFERRED NAME Student Sample, II	PASSPORT NAME	
COUNTRY OF BIRTH LAOS	COUNTRY OF CITIZENSHIP LAOS	
DATE OF BIRTH 04 MAY 1995	ADMISSION NUMBER	
FORM ISSUE REASON CONTINUED ATTENDANCE	LEGACY NAME	

SCHOOL INFORMATION

SCHOOL NAME SEVP School for Advanced SEVIS Studies SEVP School for Advanced SEVIS Studies	SCHOOL ADDRESS 9002 Nancy Lane, Ft. Washington, MD 20744
SCHOOL OFFICIAL TO CONTACT UPON ARRIVAL Helene Robertson PDSO	SCHOOL CODE AND APPROVAL DATE BAL214F44444000 03 APRIL 2015

PROGRAM OF STUDY

EDUCATION LEVEL BACHELOR'S	MAJOR 1 History and Philosophy of Science and Technology 54.0104	MAJOR 2 None 00.0000
PROGRAM ENGLISH PROFICIENCY Required	ENGLISH PROFICIENCY NOTES Student is proficient	EARLIEST ADMISSION DATE 04 APRIL 2016
START OF CLASSES 01 JUNE 2016	PROGRAM START/END DATE 04 MAY 2016 - 30 MAY 2020	

FINANCIALS

ESTIMATED AVERAGE COSTS FOR: 9 MONTHS		STUDENT'S FUNDING FOR: 9 MONTHS	
Tuition and Fees	\$ 15,000	Personal Funds	\$ 19,000
Living Expenses	\$ 4,000	Funds From This School	\$
Expenses of Dependents (0)	\$ 0	Funds From Another Source	\$
Other	\$ 0	On-Campus Employment	\$
TOTAL	\$ 19,000	TOTAL	\$ 19,000

FOIA Data Example

	AnonKey	visa_id	Visa Class	Country of Citizenship	School Code	School Name	State (Campus)	zipcode	Student Education Level	cip_6d_2020	cip_6d_2020_title	Program Start Date	Program End Date
1	2138922	I	F1	TAIWAN	WAS214F00090000	University of Virginia	VIRGINIA	22904	DOCTORATE	45.0901	International Relations and Affairs	2009-08-23	5/17/2015

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 - ▶ e.g., Institute of International Education (IIE) Open Doors data

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- Can merge with other data at Zip Code level
 - ▶ U.S. Census

6-digit CIP Fields

IESNCES National Center for Education Statistics

MENU

Search Go

40) PHYSICAL SCIENCES.

41) SCIENCE TECHNOLOGIES/TECHNICIANS.

42) PSYCHOLOGY.

43) SECURITY AND PROTECTIVE SERVICES.

44) PUBLIC ADMINISTRATION AND SOCIAL SERVICE PROFESSIONS.

45) SOCIAL SCIENCES.

45.01) Social Sciences, General.

45.02) Anthropology.

45.03) Archeology.

45.04) Criminology.

45.05) Demography and Population Studies.

45.06) Economics.

45.07) Geography and Cartography.

45.09) International Relations and Affairs.

45.10) Political Science and Government.

[45.1001\) Political Science and Government, General.](#)

[45.1002\) American Government and Politics \(United States\).](#)

[45.1003\) Canadian Government and Politics.](#)

[45.1004\) Political Economy.](#)

[45.1099\) Political Science and Government, Other.](#)

45.11) Sociology.

45.12) Urban Studies/Affairs.

45.13) Sociology and Anthropology.

45.14) Rural Sociology.

45.99) Social Sciences, Other.

46) CONSTRUCTION TRADES.

Critical Fields in DOS' Technology Alert List (TAL)

Technology Alert List (TAL)

1. **Advanced ceramics:** Technologies related to the production of tanks, military vehicles, and weapons systems.
2. **Advanced computer/microelectronic technology:** Technologies associated with superconductivity supercomputing, microcomputer compensated crystal oscillators.
3. **Aircraft and missile propulsion and vehicular systems:** Technologies associated with liquid and solid-rocket propulsion systems, missile propulsion, rocket staging/separation mechanisms, aerospace thermal and high-performance structures.
4. **Chemical and biotechnology engineering:** Technologies associated with the development or production of biological and toxin agents, pathogenics, biological weapons research.
5. **Conventional munitions:** Technologies associated with warhead and large caliber projectiles, fusing and arming systems.
6. **High-performance metals and alloys:** Technologies associated with military applications.
7. **Information security:** Technologies associated with cryptographic systems to ensure secrecy of communications.
8. **Lasers and directed energy systems:** Technologies associated with laser-guided bombs, ranging devices, countering missiles.
9. **Marine technology:** Technology associated with submarines and deep submersible vessels, marine propulsion systems designed for undersea use and navigation, radar, acoustic/nonacoustic detection.
10. **Materials technology:** Technologies related to the production of composite materials for structural functions in aircraft, spacecraft, undersea vehicles and missiles.
11. **Missile/missile technology:** Technologies associated with air vehicles and unmanned missile systems.
12. **Navigation and guidance control:** Technologies associated with the delivery and accuracy of unguided and guided weapons, such as tracking and homing devices, internal navigation systems, vehicle and flight control systems.
13. **Nuclear technology:** Technologies associated with the production and use of nuclear material for military applications.
14. **Remote imaging and reconnaissance:** Technologies associated with military reconnaissance efforts, such as drones, remotely piloted or unmanned vehicles, imagery systems, high resolution cameras.
15. **Robotics:** Technologies associated with artificial intelligence, computer-controlled machine tools.
16. **Sensors:** Technology associated with marine acoustics, missile launch calibration, night vision devices, high-speed photographic equipment.

Source: International Students and Scholar Services, Temple University

Classify CIP Fields With Natural Language Processing

- 6-digit CIP field (title) vs. TAL

Classify CIP Fields With Natural Language Processing

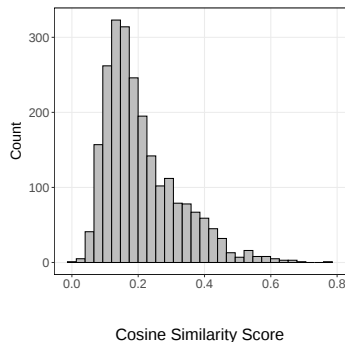
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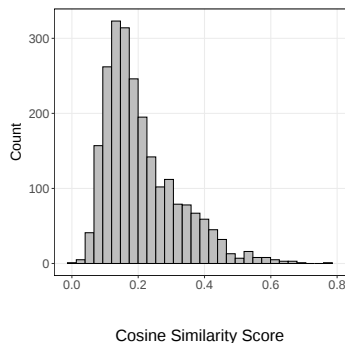
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- Measure pairwise cosine similarity
- Manually check every CIP with ≥ 0.2 cosine similarity and code fields with military-related text as sensitive



Sensitive Fields: Examples

	cip_6d_2020	cip_6d_2020_title	cip_6d_2020_def	sim_max_title	sim_max_title_def	sensitive_manual
1	29.0407	Missile and Space Systems Technology.	A program that focuses on the principles, technology ...	0.7674377	0.6136492	1
2	41.0205	Nuclear/Nuclear Power Technology/Technician.	A program that prepares individuals to apply scientifi...	0.6631781	0.7428619	1
3	15.0806	Marine Engineering Technology/Technician.	A program that prepares individuals to apply basic en...	0.6342970	0.7257663	1
4	29.0403	Aircraft Armament Systems Technology.	A program that focuses on the principles, technology ...	0.6171288	0.5474140	1
5	15.1401	Nuclear Engineering Technology/Technician.	A program that prepares individuals to apply basic en...	0.6166093	0.7010019	1
6	47.0616	Marine Maintenance/Fitter and Ship Repair Technolog...	A program that prepares individuals to apply technica...	0.6014537	0.5715324	1
7	41.0299	Nuclear and Industrial Radiologic Technologies/Tech...	Any instructional program in nuclear and industrial ra...	0.5970840	0.5018167	1
8	15.0405	Robotics Technology/Technician.	A program that prepares individuals to apply basic en...	0.5942150	0.5960751	1
9	29.0402	Air and Space Operations Technology.	A program that focuses on the principles, technology ...	0.5917902	0.5368787	1
10	29.9999	Military Technologies and Applied Sciences, Other.	Any instructional program in military technologies an...	0.5822333	0.4872288	1
11	14.2301	Nuclear Engineering.	A program that prepares individuals to apply mathem...	0.5761617	0.5803382	1
12	49.0101	Aeronautics/Aviation/Aerospace Science and Technol...	A program that focuses on the general study of aviati...	0.5758139	0.4635155	1
13	40.0806	Nuclear Physics.	A program that focuses on the scientific study of the ...	0.5684505	0.5237383	1
14	47.0608	Aircraft Powerplant Technology/Technician.	A program that prepares individuals to apply technica...	0.5603610	0.4899784	1
15	15.0801	Aeronautical/Aerospace Engineering Technology/Tec...	A program that prepares individuals to apply basic en...	0.5550110	0.5422163	1
16	14.0299	Aerospace, Aeronautical, and Astronautical/Space En...	Any program in aerospace, aeronautical, astronautical...	0.5532339	0.4685789	1
17	29.0499	Military Systems and Maintenance Technology, Other.	Any instructional program in military systems and ma...	0.5473686	0.4725583	1
18	15.0899	Mechanical Engineering Related Technologies/Techni...	Any instructional program in mechanical engineering...	0.5450487	0.4341844	1
19	14.2201	Naval Architecture and Marine Engineering.	A program that prepares individuals to apply mathem...	0.5447689	0.5323632	1
20	51.0905	Nuclear Medical Technology/Technologist.	A program that prepares individuals, under the super...	0.5433998	0.6574612	1
21	29.0401	Aerospace Ground Equipment Technology.	A program that focuses on the principles, technology,...	0.5394067	0.4735404	1
22	14.2001	Metallurgical Engineering.	A program that prepares individuals to apply mathem...	0.5358078	0.4753950	1
23	14.1801	Materials Engineering.	A program that prepares individuals to apply mathem...	0.5346251	0.6586419	1
24	40.1002	Materials Chemistry.	A program that focuses on the synthesis and study of...	0.5333857	0.5617543	1
25	47.0607	Airframe Mechanics and Aircraft Maintenance Technol...	A program that prepares individuals to apply technica...	0.5328065	0.4435057	1
26	14.0201	Aerospace, Aeronautical, and Astronautical/Space En...	A program that prepares individuals to apply mathem...	0.5303335	0.5214686	1
27	51.1002	Cytotechnology/Cytotechnologist.	A program that prepares individuals to work with pat...	0.5300136	0.5311695	1
28	40.1001	Materials Science.	A program that focuses on the general application of ...	0.5297986	0.5544237	1
29	29.0601	Military Technology and Applied Sciences Management.	A program that focuses on applied military science, ...	0.5265064	0.5156446	1
30	14.4201	Mechatronics, Robotics, and Automation Engineering.	A program that prepares individuals to apply mathem...	0.5238811	0.4950992	1

- 1 Policy Context
- 2 The Effects of Geopolitics
- 3 Data & Measures
- 4 Students from China vs. The Rest of the World**
- 5 The Effect of Tensions on Sub-national Allocations
- 6 The Effect of Tensions on Inflows in Sensitive Fields

DID Model: Aggregate

- **Unit of analysis:** country-education level-year
- **Split Sample:** level (BA, MA, PhD)
- **Model:**

$$Y_{c,t} = \beta(China_c \times Post_t) + \alpha_c + \gamma_t + X_{c,t-1} + \epsilon_{c,t},$$

- **Outcome of interest:** $Y_{c,t}$, total new int'l students
- **Key Covariates:** $China_c \times Post_t$
 - ▶ $China_c$: China dummy (vs. ROW)
 - ▶ $Post_t$: 2018 and after
- **Fixed Effects:** country, year
- **Other:** $X_{c,t-1}$, country-year covariates, including GDP (log), GDP growth (annual %), GDP per capita (PPP, log), total population (log), export (import) volume to (from) the U.S. (log)
- **Clustered Standard Errors:** country
- **Estimator:** NegBin, Quasi-Poisson

DID Results: Aggregate

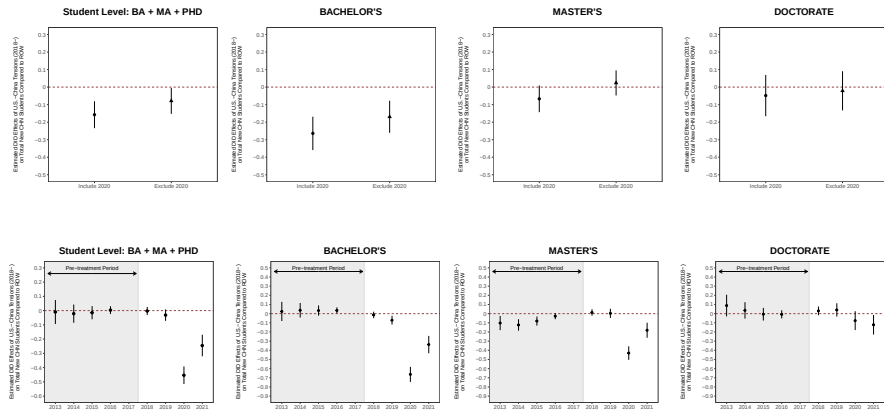


Figure: Relative Change of Total New International Students from China Compared to the ROW, 2013–2021.

- 1 Policy Context
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DID Model: Institution

- **Unit of analysis:** country-institution-education level-year
- **Split Sample:** School type (Red public, red private, blue public, blue private) & level (BA, MA, PhD)
- **Model:**

$$Y_{c,i,t} = \beta(China_{c,i} \times Post_t) + \alpha_c + \gamma_t + \theta_i + \theta_i \gamma_t + \alpha_c \theta_i + X_{c,t-1} + \epsilon_{c,i,t},$$

- **Outcome of interest:** $Y_{c,i,t}$, total new int'l students
- **Key Covariates:** $China_{c,i} Post_t$
 - ▶ $China_{c,i}$: China dummy (vs. ROW)
 - ▶ $Post_t$: 2018 and after
- **Fixed Effects:** country, year, institution, institution-year, country-institution
- **Other:** $X_{c,t-1}$, same country-year covariates as earlier
- **Clustered Standard Errors:** country
- **Estimator:** NegBin, Quasi-Poisson

DID Results: Institution

(a) All Years (2013–2021)

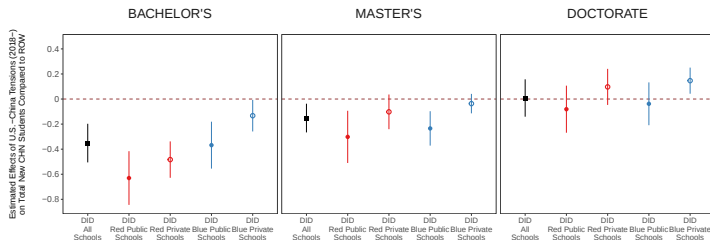


Figure: Relative Change of Total New Chinese International Students Compared to the ROW by State Partisanship and Institution Type

- 1 Policy Context
- 2 The Effects of Geopolitics
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DDD Model

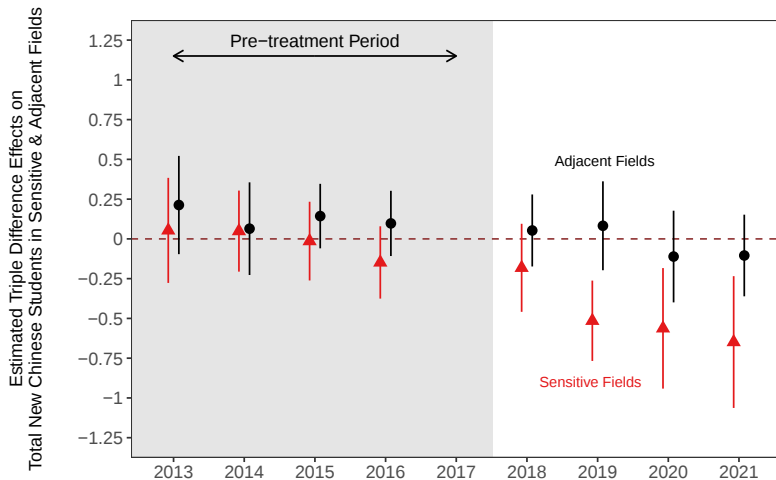
- **Unit of analysis:** country-education level-CIP field-year
- **Split Sample:** level (BA, MA, PhD)
- **Model:**

$$Y_{c,f,t} = \sum_{t=2013,-2017}^{2021} \beta_t^{S*} (China_{c,f} \times Sensitive_f \times \gamma_t) + \sum_{t=2013,-2017}^{2021} \beta_t^S (Sensitive_f \times \gamma_t) + \sum_{t=2013,-2017}^{2021} \beta_t^{A*} (China_{c,f} \times Adjacent_f \times \gamma_t) + \sum_{t=2013,-2017}^{2021} \beta_t^A (Adjacent_f \times \gamma_t) + \alpha_c + \gamma_t + \theta_f + \alpha_c \gamma_t + \alpha_c \theta_f + \epsilon_{c,f,t},$$

- **Outcome of interest:** $Y_{c,f,t}$, total new int'l students
- **Key Covariates:** $China_{c,f} \times Sensitive_f \times \gamma_t$
 - ▶ $Sensitive_f$, sensitive 6-digit CIP field dummy
 - ▶ γ_t , year dummy (2013–2021)
 - ▶ Year-by-year triple difference estimate, 2017 as baseline
- **Fixed Effects:** country, year, field, **country-year**, country-field
- **Clustered Standard Errors:** 6-digit CIP field
- **Estimator:** Negative binomial

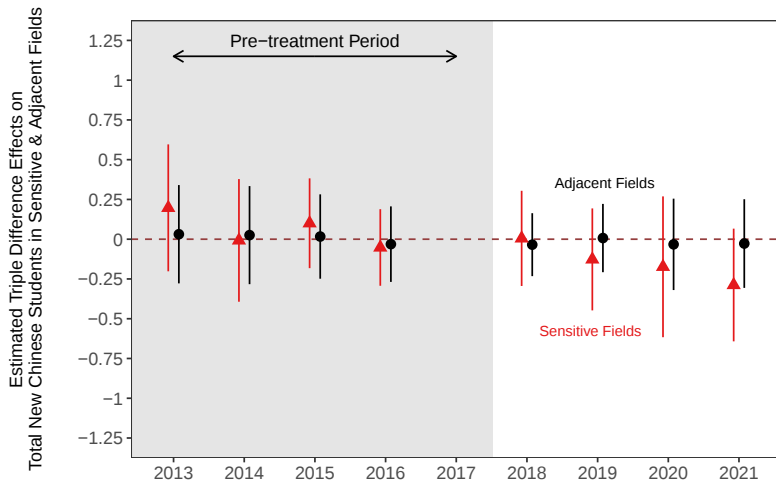
Tensions Reduced New CHN Sensitive-Field Ph.D.s

DOCTORATE



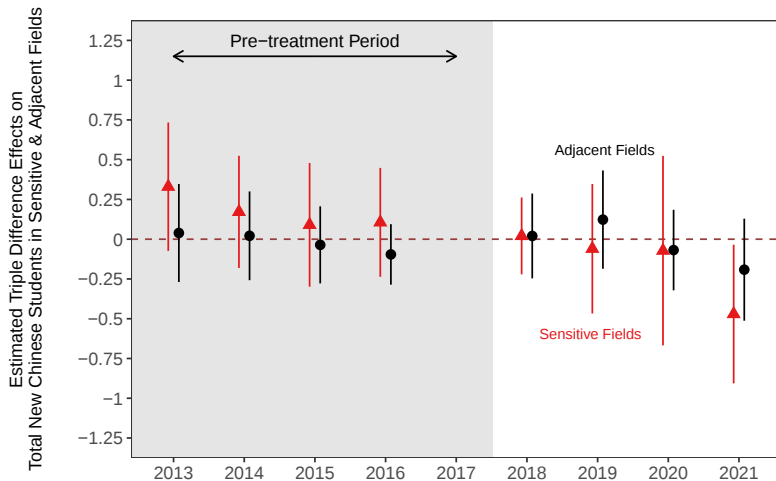
CHN MA Students: Null Effects

MASTER'S



CHN BA Students: Null Effects, esp. before COVID

BACHELOR'S



Conclusion

- **Theoretical contribution**

- ▶ Geopolitics is known to reshape cross-border economic integration
- ▶ Limited understanding of how U.S.-China tensions have impacted migration compared to trade & investment

Conclusion

● Theoretical contribution

- ▶ Geopolitics is known to reshape cross-border economic integration
- ▶ Limited understanding of how U.S.-China tensions have impacted migration compared to trade & investment
- ~> Focus on int'l students fills a critical gap in the literature
- ~> Improves understanding of geopolitics → global talent flows

Conclusion

● Theoretical contribution

- ▶ Geopolitics is known to reshape cross-border economic integration
- ▶ Limited understanding of how U.S.-China tensions have impacted migration compared to trade & investment
- ~> Focus on int'l students fills a critical gap in the literature
- ~> Improves understanding of geopolitics → global talent flows

● Empirical contribution

- ▶ Link sensitive technologies and students at the origin-field level
- ▶ Tensions → larger ↓ CHN sensitive-field PhD students
- ▶ Sub-national impacts shift CHN students toward private schools in blue states

Conclusion

● Theoretical contribution

- ▶ Geopolitics is known to reshape cross-border economic integration
 - ▶ Limited understanding of how U.S.-China tensions have impacted migration compared to trade & investment
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● Empirical contribution

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● Empirical contribution

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- ~> Reveals new patterns of uneven ↓ among int'l students in the U.S.
- ~> New sub-national policy implications of U.S.-China competition

Send comments and suggestions to:

steven.liao@ucr.edu

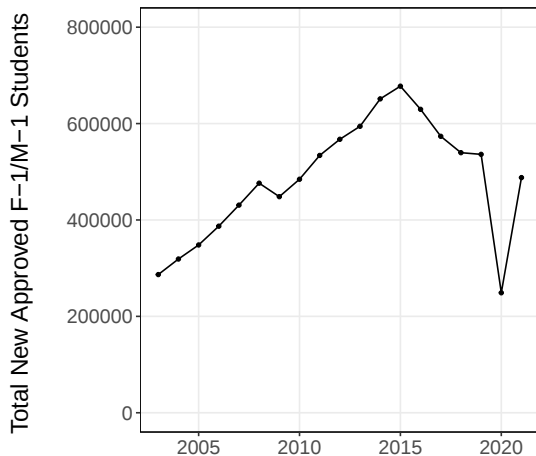
More information about this and other research:

<https://www.stevenliao.org/>

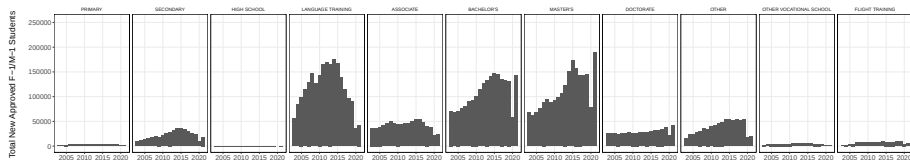
Extra Slides

- Aggregate Trends
- Education-level Trends
- Proportion of Students from China
- Proportion of Students from China by School Type
- Field-level Trends, Top 2 Origins
- Descriptive Stats: Int'l Ph.D. Students in Sensitive Fields
- Descriptive Stats: Int'l Master's Students in Sensitive Fields
- Validation: Similarity Scores & Field-Specific DID Estimates
- DID Analysis: Aggregate, Quasi-Poisson
- DID Analysis: States
- DID Analysis: Institutions, exclude 2020
- DID Analysis: Sensitive Fields, Dynamic

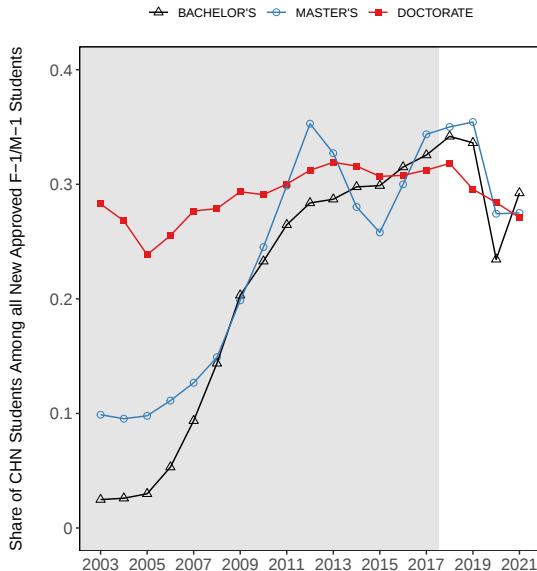
Aggregate Trends



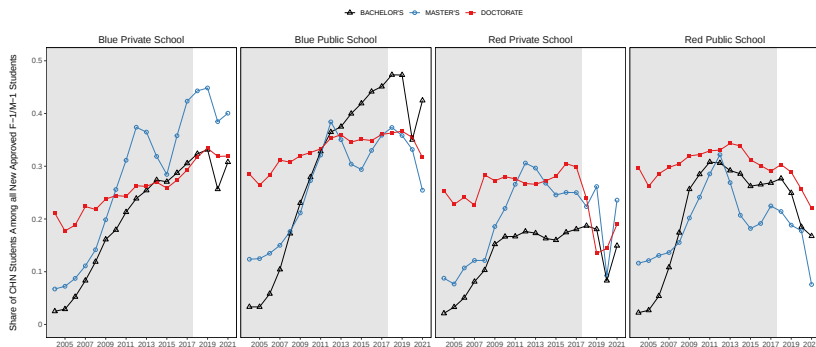
Educational-level Trends



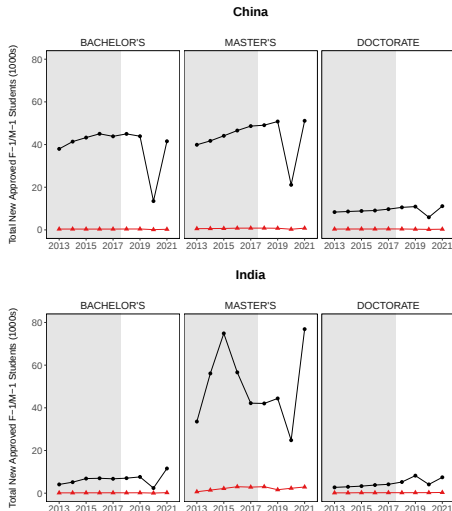
Proportion of Int'l Students from China



Prop. of Int'l Students from China, by School Type



Sensitive vs. Non-Sensitive Fields, Top 2 Origins



Descriptive Statistics: Int'l PhDs in Sensitive Fields

CIP Code	CIP Title	CN Students (13'-17')	ROW Students (13'-17')	CN Students (18'-21')	ROW Students (18'-21')	CN Change (%)	ROW Change (%)
40.0806	Nuclear Physics.	5	3	0	1	-100	-66.67
40.0808	Condensed Matter and Materials Physics.	9	11	0	2	-100	-81.82
15.0801	Aeronautical/Aerospace Engineering Technology/Technician.	1	1	0	0	-100	-100.00
15.0803	Automotive Engineering Technology/Technician.	19	13	0	0	-100	-100.00
11.1003	Computer and Information Systems Security/Auditing/Information Assurance.	9	32	1	217	-88.89	578.12
14.2001	Metallurgical Engineering.	18	30	5	26	-72.22	-13.33
14.2301	Nuclear Engineering.	154	226	43	193	-72.08	-14.60
14.1101	Engineering Mechanics.	50	97	18	48	-64	-50.52
14.0999	Computer Engineering, Other.	5	6	2	1	-60	-83.33
14.1003	Laser and Optical Engineering.	41	48	19	35	-53.66	-27.08
49.0101	Aeronautics/Aviation/Aerospace Science and Technology, General.	8	15	4	10	-50	-33.33
14.0201	Aerospace, Aeronautical, and Astronautical/Space Engineering, General.	240	885	126	805	-47.5	-9.04
14.1801	Materials Engineering.	1135	1119	757	1013	-33.3	-9.47
14.2201	Naval Architecture and Marine Engineering.	17	6	12	2	-29.41	-66.67
40.1001	Materials Science.	295	248	223	250	-24.41	0.81
14.1099	Electrical, Electronics, and Communications Engineering, Other.	46	109	42	62	-8.7	-43.12
40.0802	Atomic/Molecular Physics.	1	7	1	3	0	-57.14
40.1002	Materials Chemistry.	7	22	9	20	28.57	-9.09
14.4201	Mechatronics, Robotics, and Automation Engineering.	32	74	59	109	84.38	47.30
29.0203	Signal/Geospatial Intelligence.	2	3	6	6	200	100.00
15.0805	Mechanical/Mechanical Engineering Technology/Technician.	0	0	0	1	NaN	Inf
43.0403	Cyber/Computer Forensics and Counterterrorism.	0	0	0	12	NaN	Inf
15.0303	Electrical, Electronic, and Communications Engineering Technology/Technician.	0	1	0	0	NaN	-100.00
49.0104	Aviation/Airway Management and Operations.	0	2	0	0	NaN	-100.00

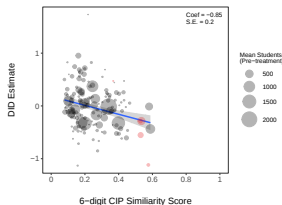
Descriptive Stats: Int'l MAs in Sensitive Fields

CIP Code	CIP Title	CN Students (13'-17')	ROW Students (13'-17')	CN Students (18'-21')	ROW Students (18'-21')	CN Change (%)	ROW Change (%)
15.0403	Electromechanical/Electromechanical Engineering Technology/Technician.	1	2	0	5	-100	150
40.1002	Materials Chemistry.	1	14	0	10	-100	-28.57
43.0301	Homeland Security.	3	30	0	29	-100	-3.33
49.0199	Air Transportation, Other.	1	14	0	4	-100	-71.43
15.0801	Aeronautical/Aerospace Engineering Technology/Technician.	2	4	0	0	-100	-100
40.0808	Condensed Matter and Materials Physics.	2	0	0	0	-100	NaN
49.0399	Marine Transportation, Other.	7	9	0	0	-100	-100
14.2001	Metallurgical Engineering.	14	45	1	31	-92.86	-31.11
49.0104	Aviation/Airway Management and Operations.	13	110	1	26	-92.31	-76.36
14.2201	Naval Architecture and Marine Engineering.	40	15	5	12	-87.5	-20
43.0403	Cyber/Computer Forensics and Counterterrorism.	19	159	3	389	-84.21	144.65
15.0803	Automotive Engineering Technology/Technician.	33	397	11	128	-66.67	-67.76
14.0201	Aerospace, Aeronautical, and Astronautical/Space Engineering, General.	326	1720	142	1097	-56.44	-36.22
14.1003	Laser and Optical Engineering.	42	40	19	11	-54.76	-72.5
14.2301	Nuclear Engineering.	50	162	29	86	-42	-46.91
14.1801	Materials Engineering.	1522	1009	945	722	-37.91	-28.44
14.1101	Engineering Mechanics.	16	57	12	20	-25	-64.91
40.1001	Materials Science.	491	238	372	159	-24.24	-33.19
15.0303	Electrical, Electronic, and Communications Engineering Technology/Technician.	8	146	7	29	-12.5	-80.14
29.0203	Signal/Geospatial Intelligence.	2	1	2	9	0	800
51.0905	Nuclear Medical Technology/Technologist.	1	5	1	12	0	140
11.1003	Computer and Information Systems Security/Auditing/Information Assurance.	393	8186	409	8479	4.07	3.58
49.0101	Aeronautics/Aviation/Aerospace Science and Technology, General.	52	185	63	278	21.15	50.27
29.0207	Cyber/Electronic Operations and Warfare.	4	55	5	89	25	61.82
14.1099	Electrical, Electronics, and Communications Engineering, Other.	261	461	329	203	26.05	-55.97
14.4201	Mechatronics, Robotics, and Automation Engineering.	192	436	292	1041	52.08	138.76
29.0299	Intelligence, Command Control and Information Operations, Other.	1	1	2	4	100	300
14.0999	Computer Engineering, Other.	22	62	50	225	127.27	262.9
15.0805	Mechanical/Mechanical Engineering Technology/Technician.	6	12	15	7	150	-41.67
15.0405	Robotics Technology/Technician.	10	12	27	31	170	158.33
43.0404	Cybersecurity Defense Strategy/Policy.	0	0	1	1	Inf	Inf
14.0202	Astronautical Engineering.	0	3	0	10	NaN	233.33
15.0508	Hazardous Materials Management and Waste Technology/Technician.	0	3	0	1	NaN	-66.67
15.0899	Mechanical Engineering Related Technologies/Technicians, Other.	0	0	0	1	NaN	Inf
40.0806	Nuclear Physics.	0	0	0	1	NaN	Inf
43.0399	Homeland Security, Other.	0	3	0	3	NaN	0
51.1002	Cytotechnology/Cytotechnologist.	0	10	0	6	NaN	-40
26.0912	Aerospace Physiology and Medicine.	0	5	0	0	NaN	-100
28.0602	Military and Strategic Leadership.	0	1	0	0	NaN	-100
30.2901	Maritime Studies.	0	3	0	0	NaN	-100
40.0802	Atomic/Molecular Physics.	0	3	0	0	NaN	-100
47.0607	Airframe Mechanics and Aircraft Maintenance Technology/Technician.	0	1	0	0	NaN	-100
47.0614	Alternative Fuel Vehicle Technology/Technician.	0	1	0	0	NaN	-100

Validation: Similarity Scores & DID estimates

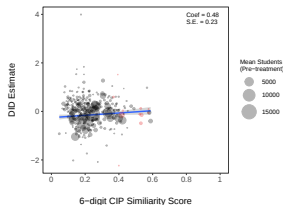
DOCTORATE

NegBin, 2013–2021, exclude 2020 = FALSE



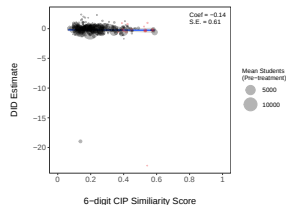
MASTER'S

NegBin, 2013–2021, exclude 2020 = FALSE

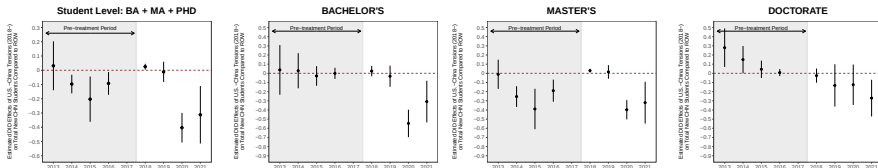


BACHELOR'S

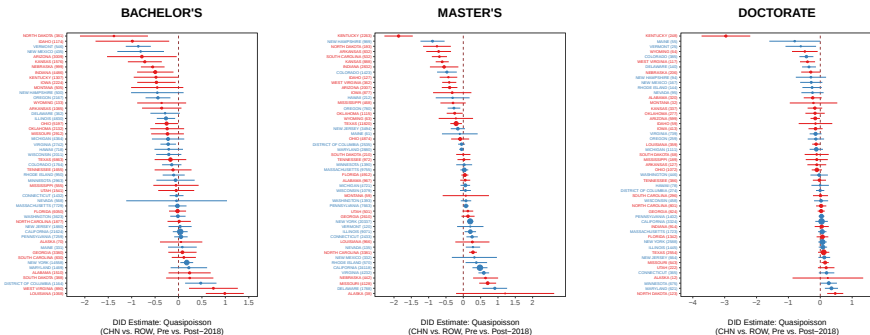
NegBin, 2013–2021, exclude 2020 = FALSE



Aggregate DID Analysis: Quasi-Poisson Results



DID Effects of U.S.-China Tensions by State



DID Results: Heterogeneity by State and Institution

(a) Exclude 2020

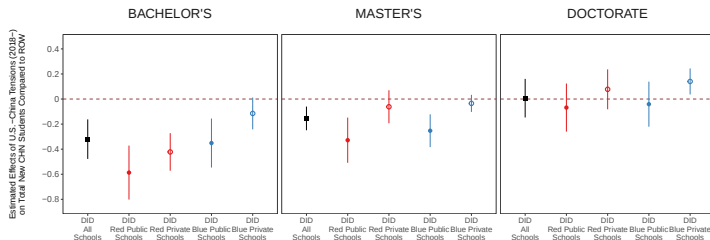


Figure: Relative Change of Total New Chinese International Students Compared to the ROW by State Partisanship and Institution Type

Dynamic DID Results

