
Network-driven Choices of Econ PhD Programs

Li Liu

MA student in Computational Social Science

The University of Chicago

Presented for Network Analysis class

Econ Job Market

- What's the trend?
- What's the network structure?
- Who is the 'king'?
- Is there a division?
- Who are on rise/decline?

So what?

For Economics audience:

- Make data-driven school choices
- Plan career ahead
- Develop a web app for choosing schools

For Non-Econ audience:

- Case study of network analysis with Networkx package in Python
- Open-source code for replications ([Link to Github Folder](#))

Who is in the network

Graduates of Top 100 U.S
Economics PhD Programs

8 years (2010-2017)

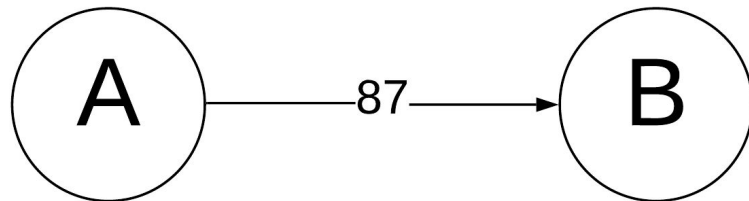
Only keep academic positions

ID		Source	Year	Placement
0	2	arizona state university	2011	Hofstra University
1	2	arizona state university	2015	University of Winnipeg
2	2	arizona state university	2014	Nanjing University School of Business, Jiangsu...
3	2	arizona state university	2011	Yeshiva University
4	2	arizona state university	2016	Virginia Commonwealth University, Virginia
...
3904	110	yale university	2015	Middlebury College
3905	110	yale university	2014	Bryn Mawr College, visiting
3906	110	yale university	2014	EUROPEAN UNIVERSITY INSTITUTE Postdoc
3907	110	yale university	2014	Queensland University
3908	110	yale university	2014	Williams College

What's the story?

Story

a graduate from school A is hired by school B



Attributes: measures of node A.
Ex. Size, Faculty Awards, % of
Graduates in Academia, Ranking,
Program Size, etc

Weights: rate the quality by the
'prestigious' of school B (discounted for
types of positions)

Placement Data

Collected from the schools' department websites

THE KENNETH C. GRIFFIN
DEPARTMENT OF
ECONOMICS
THE UNIVERSITY OF CHICAGO

CONTACT | NEWS

principal forum through which graduate students
interview with prospective employers).

Ufuk Akcigit
Co-Director of Graduate Placement
Email: uakcigit@uchicago.edu
Phone: (773) 702-0433

Alessandra Voena
Co-Director of Graduate Placement
Email: avoena@uchicago.edu
Phone: (773) 702-9127

2019-20 Job Placement Candidates

Previous PhD Placements [PDF]

Student Resources [CNet ID required]

2016 – 2017

Academic – Tenure Track

Carnegie Mellon – Tepper School of Business
City University of Hong Kong – Finance
University of Illinois at Urbana-Champaign (2)
London Business School
University of Maryland
Nanyang Technological University – Finance
University of North Carolina – Finance
Pennsylvania State University (2)
University of California at San Diego – Public Policy
University of Texas at Austin – Finance
Tsinghua University
Yale University

Academic – Non-Tenure Track

University of California, Berkeley

Public Sector

Bank of Canada
Bank of Colombia
InvestChile
Korea Institute of Finance
World Bank

Private Sector

Analysis Group
Boston Consulting Group
Compass Lexecon
Cornerstone Research (2)
Rand Corporation

Prestigious Data

- Source: The Tilburg University Worldwide Economics Schools Research Ranking
- About 1000 worldwide programs with at least one publications from 2010 to 2017
- Measure: Publications in 70 leading economics journals

Select Range

From : 2010 ▼

To : 2017 ▼

Region : World ▼

Country : All ▼

Show Top : 100 ▼

Select weighting factor

☒ Tilburg University











☐ Journal Impact Factor

☐ Article Influence Score

Journals

Using a selection of journals

Change

Rank	University	Score
1.	 HARVARD UNIVERSITY	853
2.	 UNIVERSITY OF CHICAGO	687
3.	 STANFORD UNIVERSITY	580
4.	 LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE	516
5.	 MASSACHUSETTS INSTITUTE OF TECHNOLOGY	502
6.	 UNIVERSITY OF CALIFORNIA, BERKELEY	501
7.	 UNIVERSITY OF PENNSYLVANIA	483
8.	 COLUMBIA UNIVERSITY	473
9.	 NEW YORK UNIVERSITY	458
10.	 YALE UNIVERSITY	440

Attributes Data - Top 100 US Program

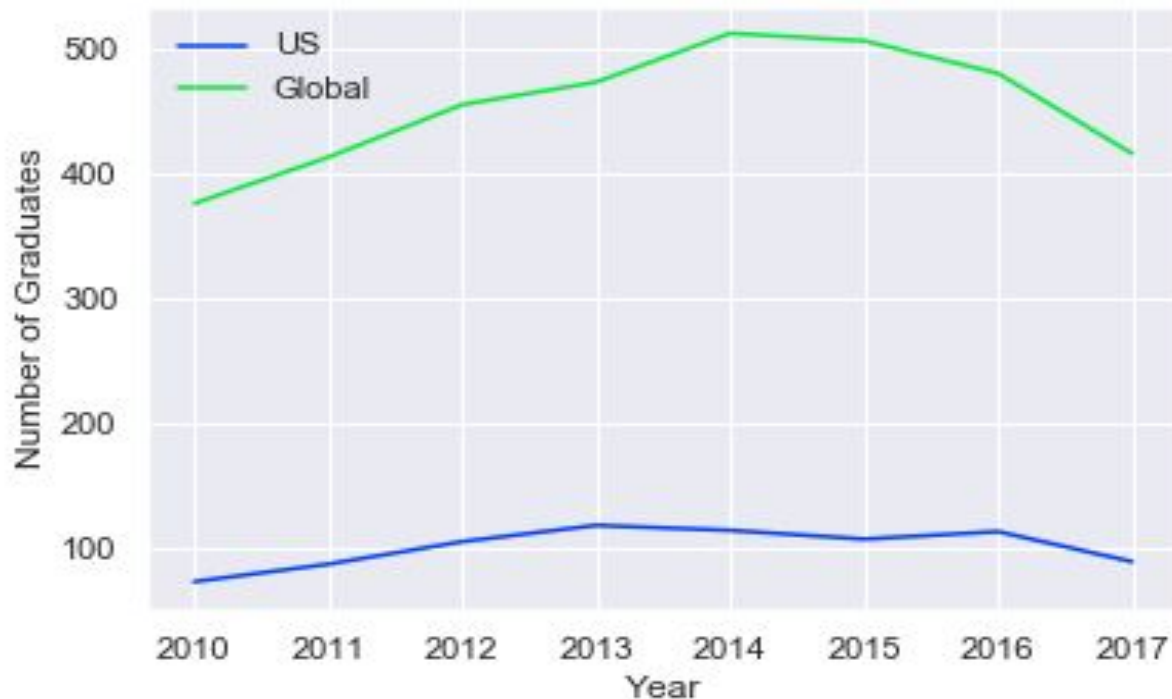
- The National Research Council's "A Data-Based Assessment of Research-Doctorate Programs" in 2010
- Examines the program characteristics of Top 100 Economics Ph.D. doctoral programs in the U.S

ID	Name	Rank	Private	Size	City	Space	FS	International	Citations	FacultySize	Time
24	harvard university	104.0	1	4	1	0	1.00	0.51	4.21	66	5.00
65	university of chicago	103.0	1	4	1	0	0.55	0.73	3.34	70	5.50
31	massachusetts institute of technology	102.0	1	4	1	1	0.96	0.58	3.25	46	4.80
57	university of california-berkeley	101.0	0	4	1	0	0.50	0.34	2.83	60	5.70
41	princeton university	100.0	1	4	0	0	1.00	0.71	3.04	47	5.20
33	new york university	98.0	1	4	1	1	1.00	0.86	2.24	59	5.67
48	stanford university	98.0	1	4	1	0	0.83	0.61	2.81	73	6.00
110	yale university	97.0	1	4	1	0	1.00	0.67	1.68	43	5.20
78	university of maryland college park	96.0	0	4	0	1	0.95	0.71	1.95	52	5.30
91	university of pennsylvania	94.0	1	4	1	1	0.23	0.77	2.21	46	4.90

Q1: What's the trend of econ job market?

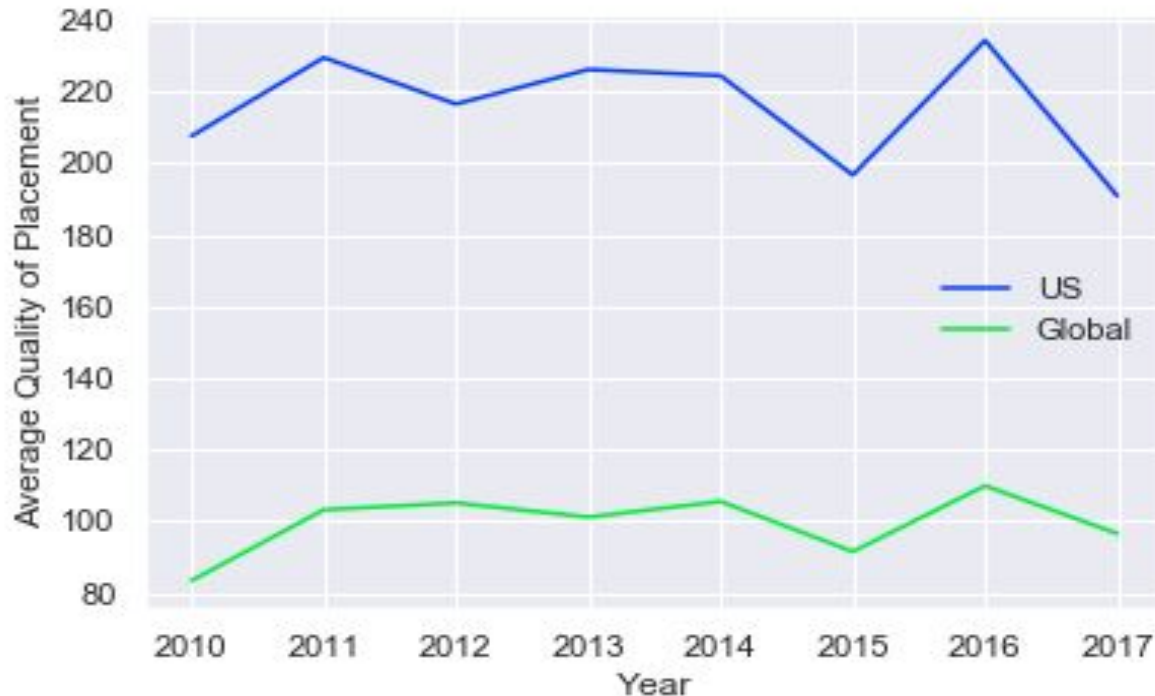
Not easy to get a position at Top US Schools

Only around 25% Are Placed in Top 100 U.S Schools



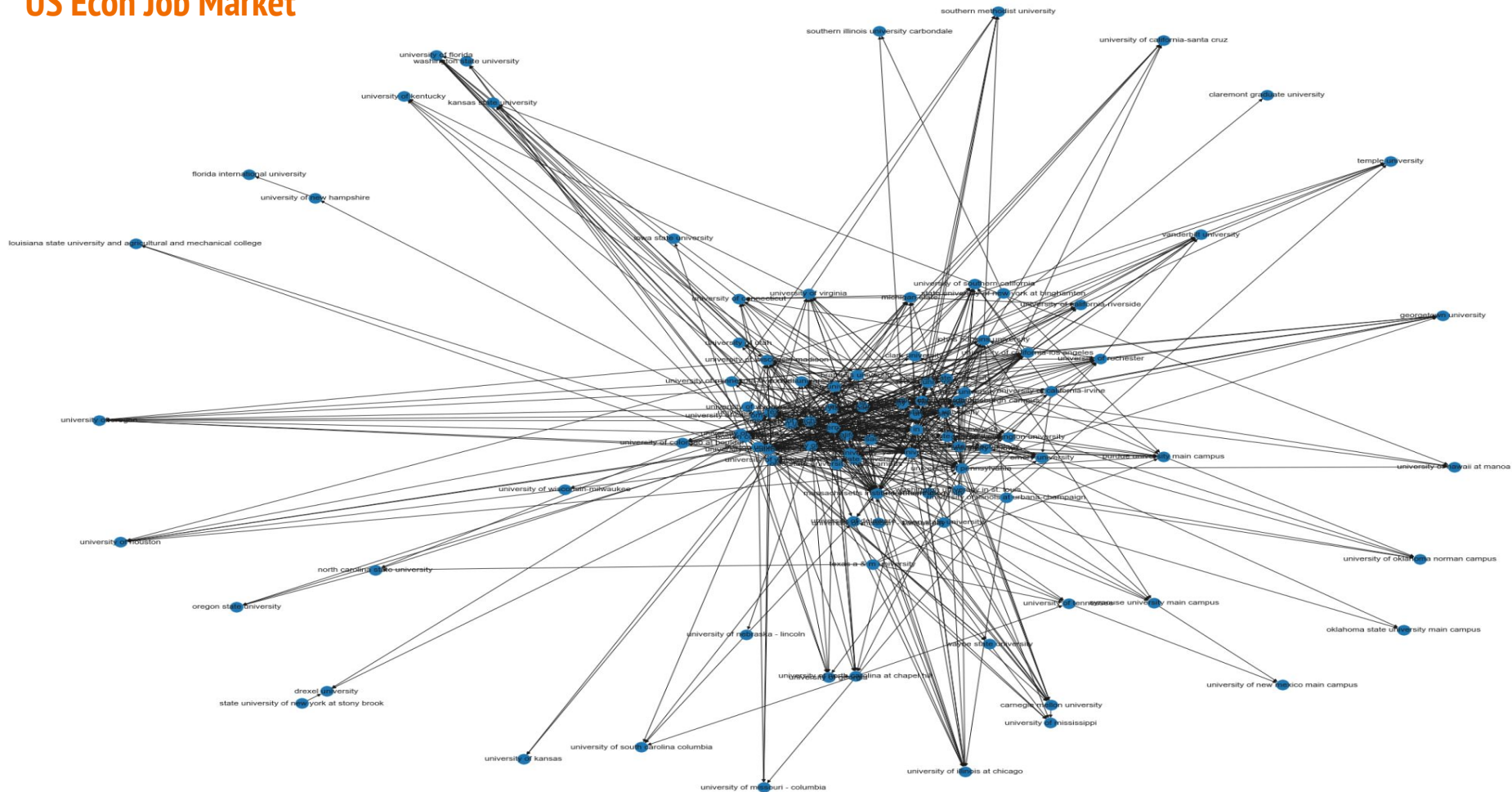
Placements in US are generally more 'prestigious'

Harder to Get a Good Econ Academic Position

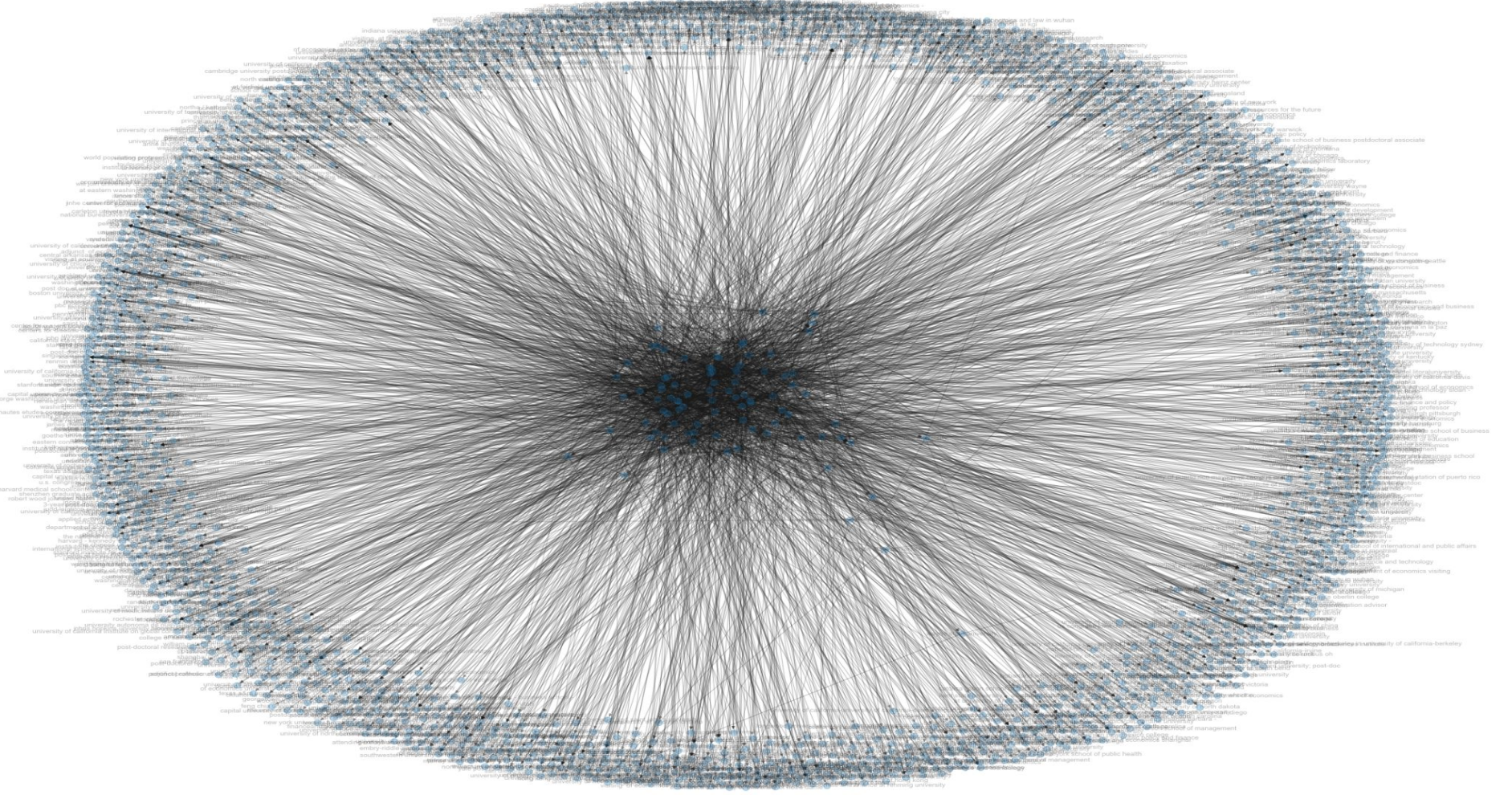


Q2: What's the network structure of econ job market?

US Econ Job Market

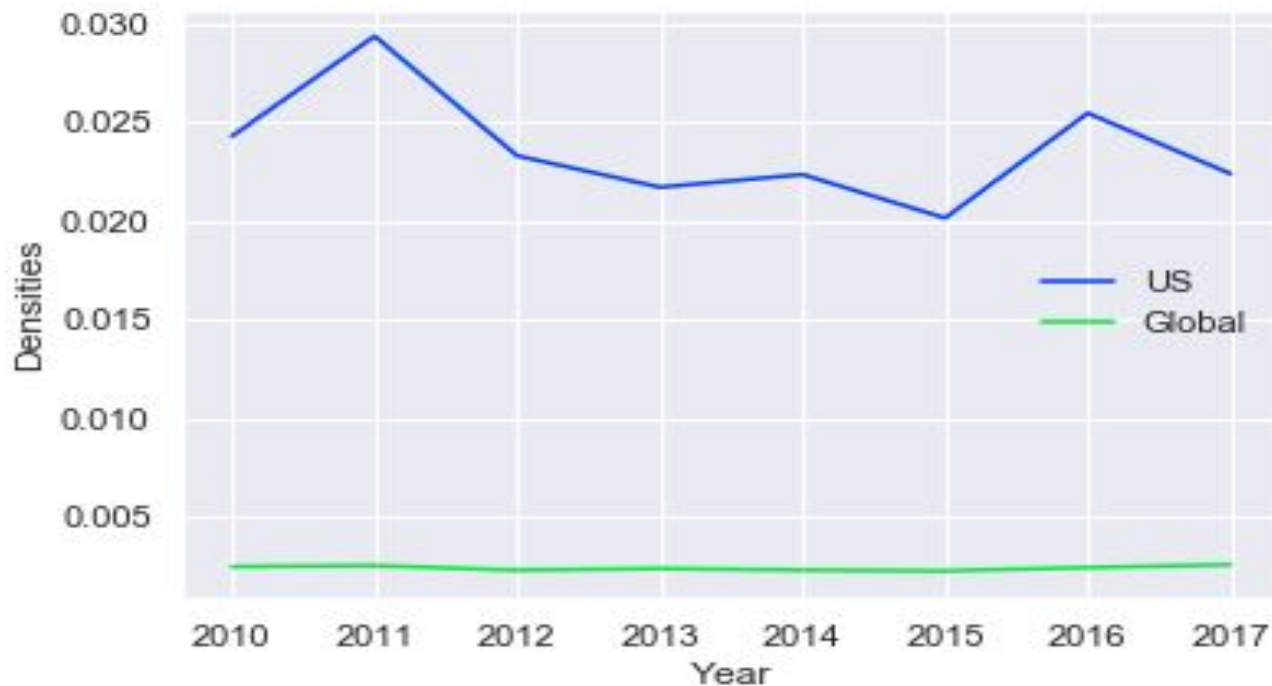


Global Econ Job Market



Densities: quite stable

US Market is 82 times densier than the global job market



Indegrees and Outdegrees for US Placement



Indegrees and Outdegrees for Global Placement



Q3. Which school is the 'king'?

Centrality

- **Eigenvector centrality**

looks at a combination of a node's edges and the edges of that node's neighbors.

- **Betweenness centrality**

looks at all the shortest paths that pass through a particular node

- **Closeness centrality**

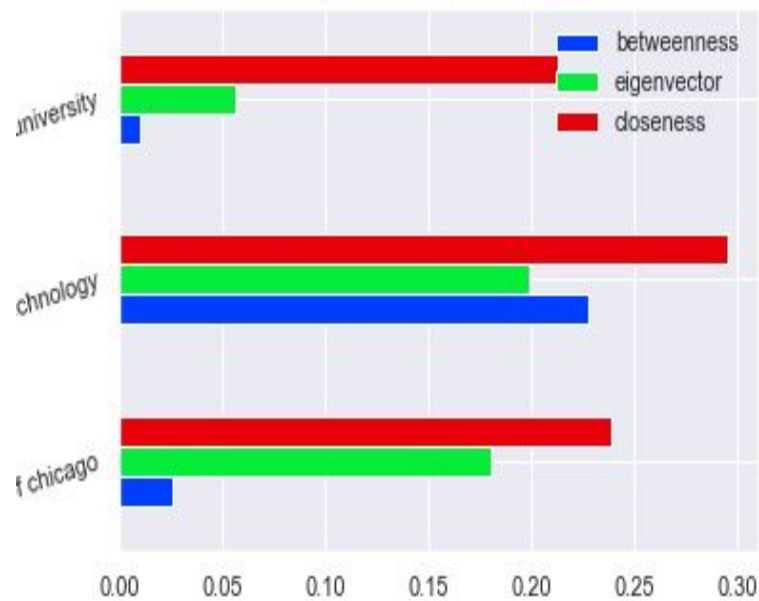
looks at the sum of its distances to all other nodes

Harvard, MIT, or UChicago?

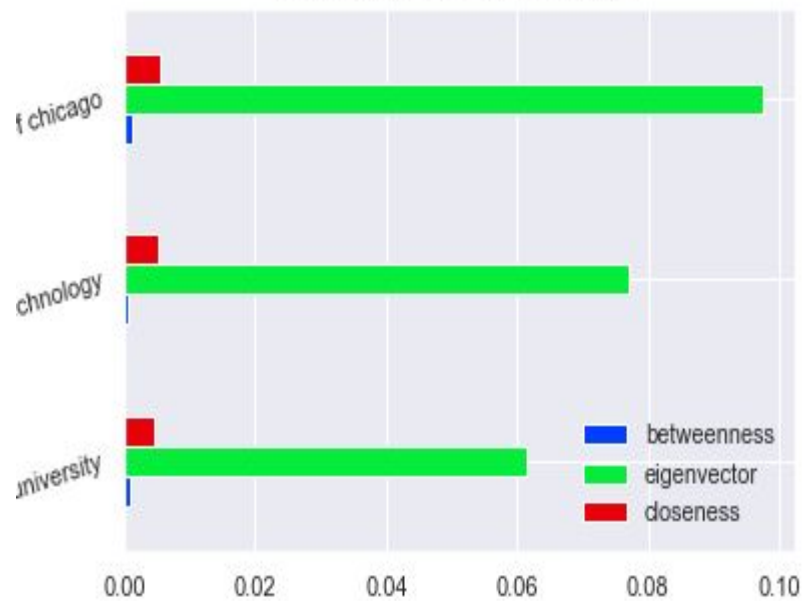
	betweenness	eigenvector	closeness
harvard university	0.0008	0.0614	0.0047
massachusetts institute of technology	0.0008	0.0769	0.0053
university of chicago	0.0012	0.0974	0.0056

Who wins?

US Placement: MIT wins!



Global Placement: UChicago wins

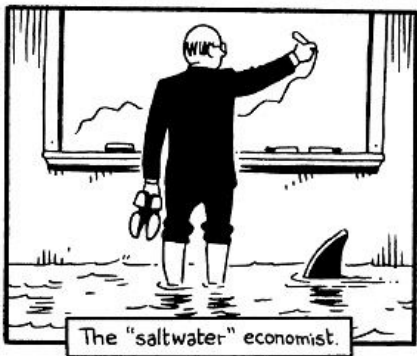


Q4. Is there a division?

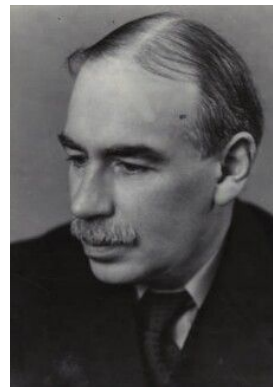
Clash of Ideas: Freshwater v.s. Saltwater



University of Chicago
Carnegie Mellon University
Northwestern University
Cornell University
The University of Minnesota
The University of Rochester



University of California, Berkeley
Brown University
Harvard University
University of Pennsylvania
Princeton University
Columbia University
Yale University

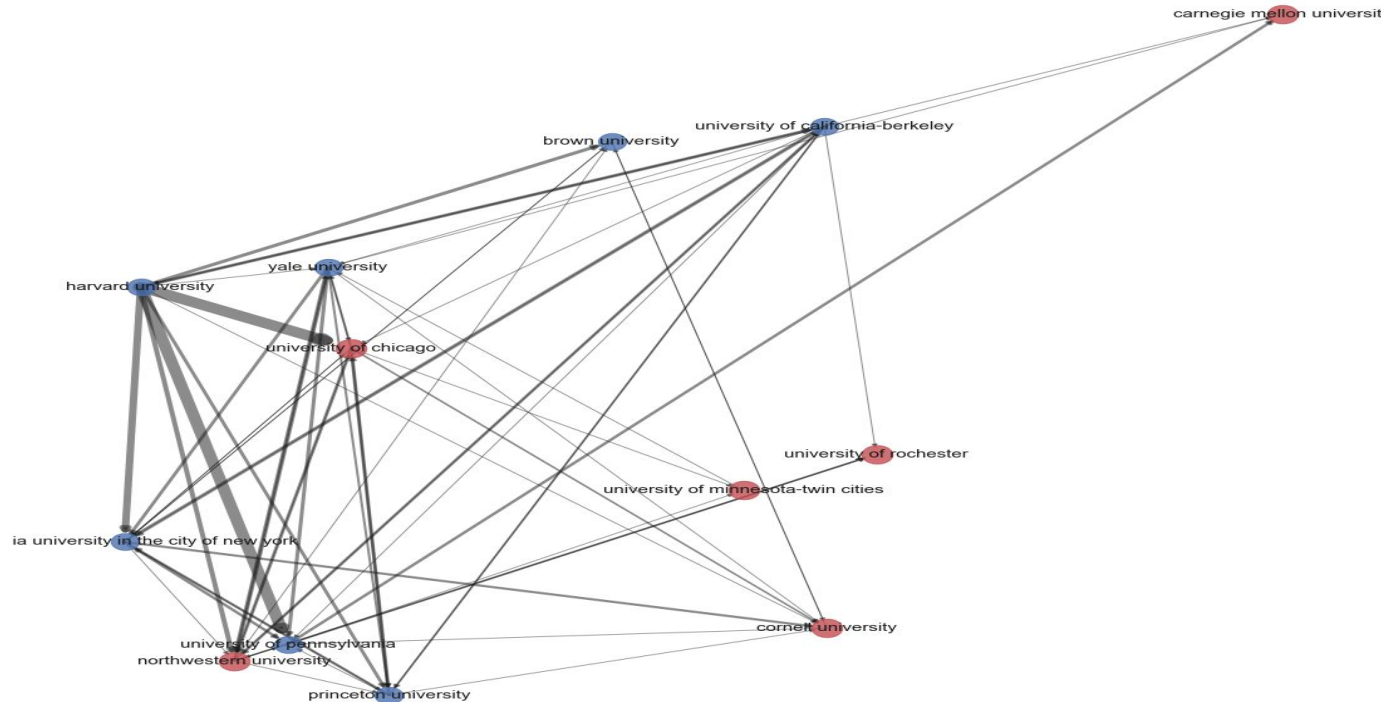


Saltwater seems to dominate



- Conditional on graduates from certain group

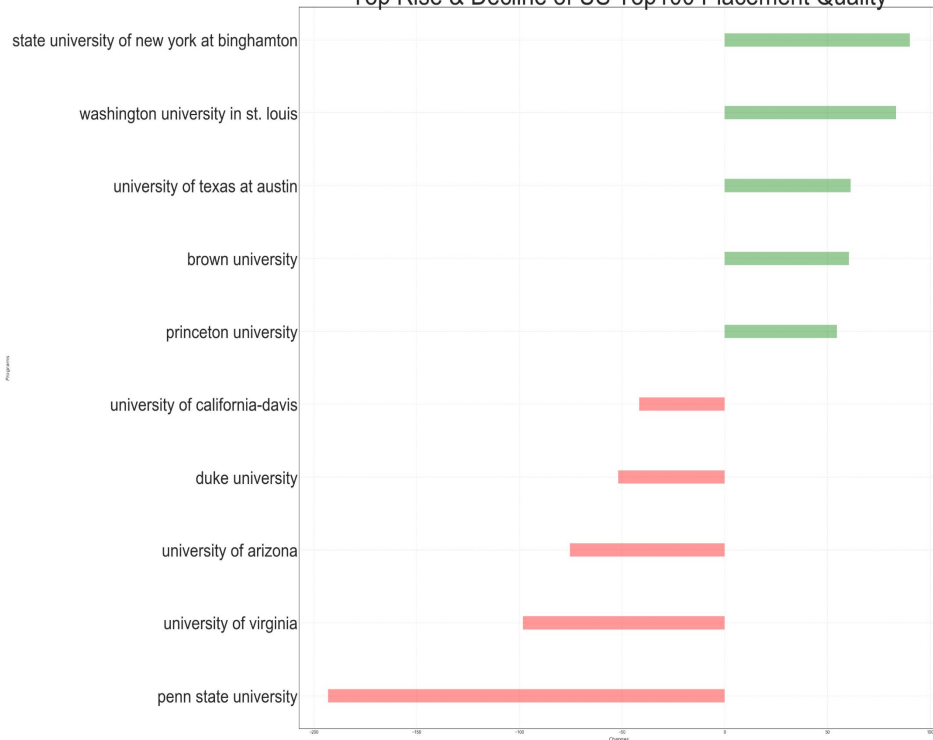
Freshwater v.s. Saltwater: No clear divide



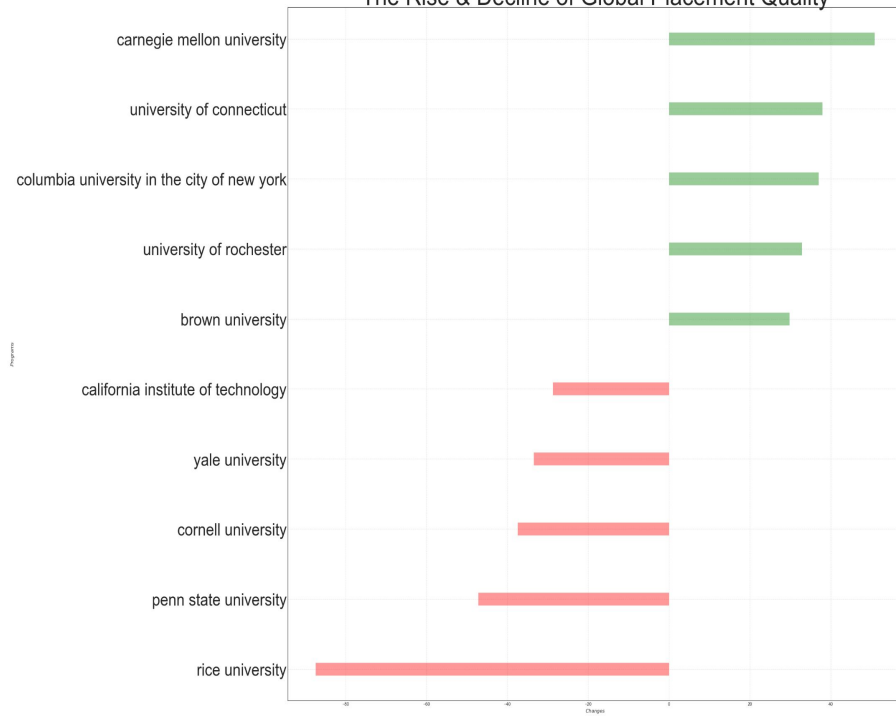
Q5. Who are on rise/decline?

Placement quality changes

Top Rise & Decline of US Top100 Placement Quality



The Rise & Decline of Global Placement Quality



Final Q. What's next?

Goal: develop web app for choosing Econ PhD Programs

- Measure placement in industry and public sector
- Calculate the variance within each school's graduates
- Identify the network between schools' all faculty
- Collect data from online forum on application results
- Build model for predicting students' placement outlook

Happy to talk more if you're interested!

Contact: liu431@uchicago.edu