Scholars and Universities in the US-Field of Power. A Network-Analytical approach.

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Research Questions

1. *Are the strategies of the universities associated with having access to the field of power?*
2. *What kind of resources (e.g. prestige) account for universities having access in the field of power?*

Theoretical Framework

Habitus Fieldtheory (Bourdieu 2000; 2010) and Academic Capitalism Approach (Münch 2014) assumes an imbalance of power between universities linked to internal competition (creation of knowledge) and external competition.

Fields are not autonomous (Krause 2018) and overlap with the field of power (Schmitz et al. 2017). In the field of power, exchange rates between different resources (e.g. expertise), aims and definitions of society are at stake. This includes science policy and the chances to gain advantages to conduct research, gain grants or the most talented researchers.

Therefore, universities in the US have an interest to gain access and shape the aims and exchange rates of resources in the field of power. This Access measure can be theorized and operationalized as form of field-spanning Social capital (Burt 2005; Lin 2002; WIeczorek et. al. 2020) and used to further link Habitus-Fieldtheory and social network analysis (de Nooy 2003; 2011; Fuhse 2010).

Access Measure

$$A_i = \frac{100}{M * max\{A_i\}} * \left(\sum_{j=1}^{M} \frac{\omega_{i,j}}{E_j} \sum_{j=1}^{M} \sum_{k=1}^{L} \frac{\omega_{i,k}\omega_{k,j}}{E_k E_j \delta_{i,j}^2} \right)$$

A_i Access A of a node i, j = relevant node (e.g. PCAST), k = neighboring node, E = number of edges of given node, ω as the tie-strength, δ = distance of the shortest path between two nodes (e.g. 1 if the nodes are neighbors, 2 if connected to a third party and so on).

Assumptions

1. **Competition:** Every actor j competes against others k for gaining access on relevant nodes i.
2. **Distance:** The greater distance $\delta_{i,j}$, the more distorted the possible access gets.
3. **Third Parties:** Every actor may mobilize third parties who are in touch with relevant nodes.

Data and Methods

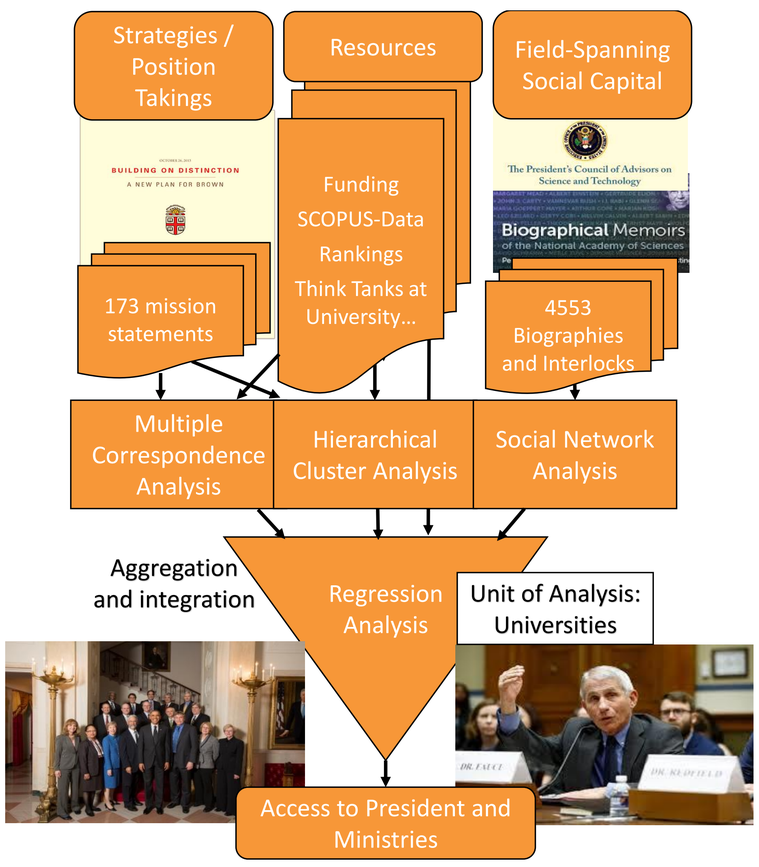

Fig. 1: Overview of the process of data collection and data analysis.

Regression Results

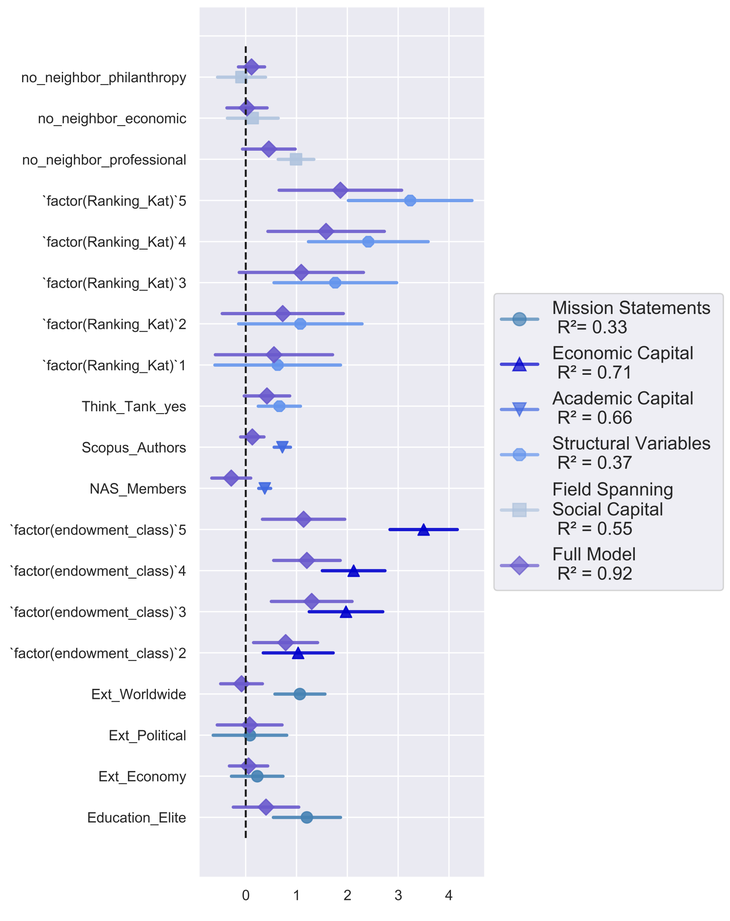

Fig. 2: Overview of the process of data collection and data analysis.

Results of the SNA

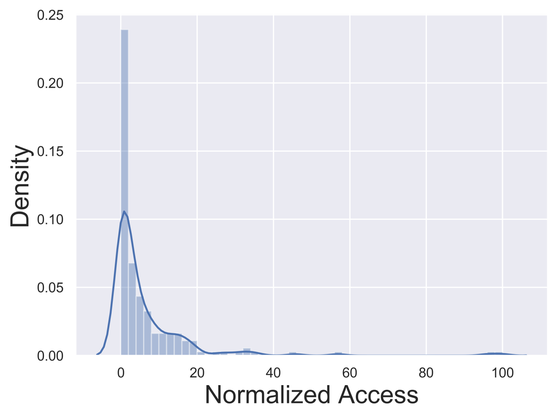

Fig 2: Density and distribution of the Access Measure.

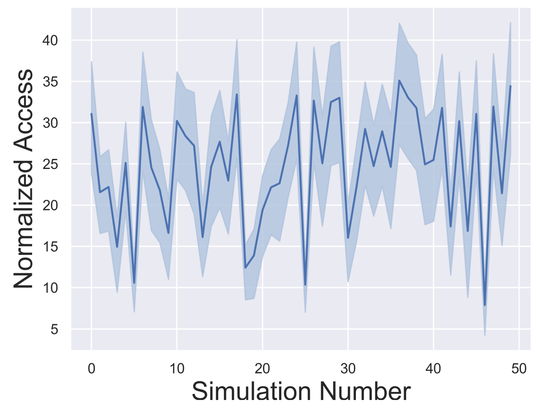

Fig 3: Simulation Results

Characteristics of the empirically measured access value and of the simulated values

	Measured	Simulated
Mean	6.61	24.70
σ	12.80	7.07
Skewness	4.68	-0.53

Table 1:

Most central Universities

1. Harvard University ($A = 100$)
2. MIT ($A = 96.13$)
3. University of Michigan Ann Arbor ($A = 56.86$)
4. University of California Berkeley ($A = 45.70$)
5. Iowa State University ($A = 35.68$)

Field-Affiliation of relevant nodes

Field	% direct	% indirect
Professional	23.54	24.73
Academic	16.05	14.77
National Laboratory	6.96	3.45
Economic Field	13.05	21.53
Bureaucratic Field	19.51	8.57
Think Tanks	4.54	4.56
Consulting	2.16	4.81
Military	4.73	1.22
Philanthropy	5.84	10.66

Table 2:

Correlations between centrality measures and access measure

	Betweenness Centrality	Eigenvector Centrality	Access
Betweenness Centrality	1	0.58	0.81
Eigenvector Centrality	0.58	1	0.58
Access	0.81	0.58	1

Table 3:

Most central Actors per Cluster (see Newman 2006)

	Cluster 1	Cluster 10	Cluster 4
1	American Association for the Advancement of Science	National Academy of Sciences	Open Society Institute
2	National Science Foundation	American Academy of Arts and Sciences	Bill and Melinda Gates Foundation
3	American Physical Society	Harvard University	United Nations
4	Institute for Electrical and Electronic Engineers	MIT	John Templeton Foundation
5	Nuclear Energy Advisory Committee	Council on Foreign Relations	World Bank
obs	573	434	335
Mean Betweenness Centrality	$8.8 * 10^{-}4$	$1.5 *^{1} 0 - 3$	$5.9 * 10^{-}4$

Table 4:

Literature

Bourdieu, Pierre. 2000. Pascalian meditations. Stanford, Calif: Stanford University Press.; **Bourdieu, Pierre. 2010.** Homo academicus. 1. Aufl., [Nachdr.]. Frankfurt am Main: Suhrkamp.; **Burt, Ronald S. 2005**. Brokerage and closure: An introduction to social capital. Oxford university press.; **de Nooy, Wouter. 2011.** Networks of action and events over time. A multilevel discrete-time event history model for longitudinal network data. Social Networks 33: 31–40.; **de Nooy, Wouter. 2003.** Fields and networks: correspondence analysis and social network analysis in the framework of field theory. Poetics 31: 305–327.; **Krause, Monika. 2018.** How fields vary. The British journal of sociology 69: 3–22.; **Lin, Nan. 2002.** Social Capital: A Theory of Social Structure and Action. Cambridge: Cambridge University Press.; **Münch, Richard. 2014.** Academic capitalism: universities in the global struggle for excellence. New York: Routledge.; **Newman, Mark EJ. 2006.** Modularity and community structure in networks. Proceedings of the national academy of sciences 103: 8577–8582.; **Schmitz, Andreas, Daniel Witte, und Vincent Gengnagel. 2017.** Pluralizing field analysis: Toward a relational understanding of the field of power. Social Science Information 56: 49–73.; **Wieczorek, Oliver J, Mark Wittek, und Raphael H Heiberger. 2020.** Being published successfully or getting arXived? The importance of social capital and interdisciplinary collaboration for getting printed in a high impact journal in Physics. arXiv preprint arXiv:2006.02148.