



# Challenges to Research Quality in the knowledge Economy

Sheila Slaughter

Louise McBee Professor of Higher Education

Institute for Higher Education

University of Georgia, USA



# Knowledge Economy

- ▶ Universities are central:
  - ▶ Upside--Discovery, technology, intellectual property, entrepreneurship, growth
  - ▶ Downside: competition, stratification, increasing wealth inequality
    - ▶ MONETIZATION
    - ▶ POLITICIZATION



# Background & theory

- ▶ Academic capitalism: universities move toward the market beginning mid 1970s US as do other English speaking countries
  - ▶ Followed by other countries
- ▶ End of the Keynesian consensus, cut backs of state funds, and many more students to educate
- ▶ Rise of neoliberalism, preference for markets over public goods
- ▶ Universities, faculty & staff increasingly compete not only for external resources to augment funding, but with each other to secure position & prestige in academe



# MONITIZATION.

## Prestige & money entwined

- ▶ In economic terms knowledge has traditionally been regarded as a public good because it is non-rivalrous and non-excludable
  - ▶ But that is increasingly less so
    - ▶ Need money to do "evidence based science"
    - ▶ Have to get money to win promotion & tenure
    - ▶ A growing preference for "entrepreneurial science" in terms of reward systems of universities
    - ▶ " I estimate that in 2007 alone approximately 400 faculty members received \$650 million in royalties from mega licenses." Paula Stephan

“ ...and those scientists have a really, really big political agenda”



# Increasing numbers of scientists

## Number of Doctorate Recipients by Field of Study

Field	2004	2009	2014
All	42,123	49,553	54,070
Life sciences	8,813	11,403	12,504
Physical sciences	6,047	8,324	9,859
Social sciences	7,043	7,829	8,657
Engineering	5,777	7,642	9,568
Education	6,635	6,528	4,793
Humanities	5,210	4,891	5,486



# Decreasing numbers of jobs

dropping.

## Percent of Doctorate Recipients With Job or Postdoc Commitments, by Field of Study

Field	2004	2009	2014
All	70.0%	69.5%	61.4%
Life sciences	71.2%	66.8%	57.9%
Physical sciences	71.5%	72.1%	63.8%
Social sciences	71.3%	72.9%	68.8%
Engineering	63.6%	66.8%	57.0%
Education	74.6%	71.6%	64.6%
Humanities	63.4%	63.3%	54.3%

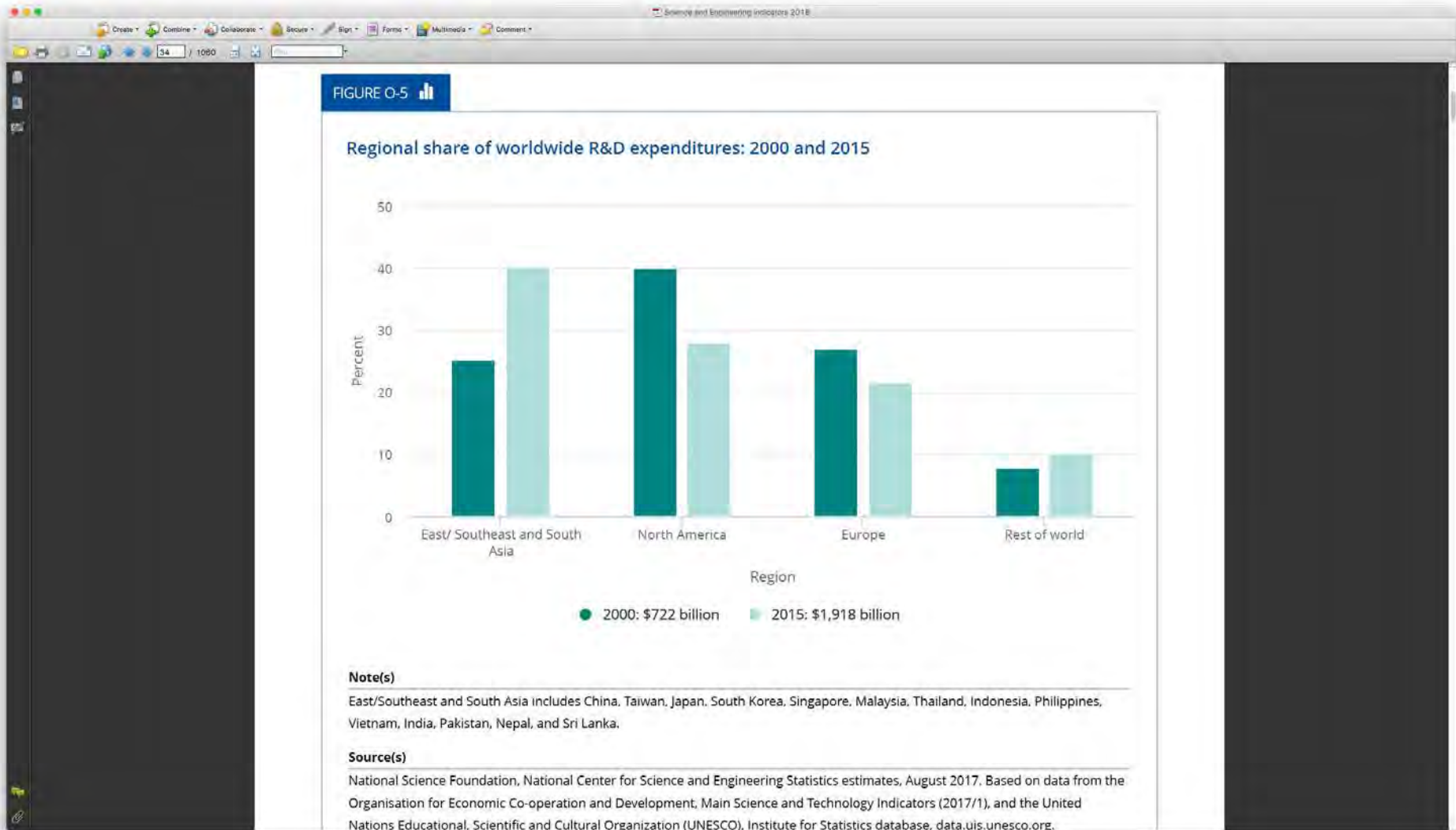
The declining number of jobs in the field of study is a major reason why many Ph.D. holders are

# Especially full time tenure track jobs for new PhDs

- ▶ The percentage of S&E doctorate holders employed in academia who held full-time faculty positions declined from about 90% in the early 1970s to about 70% in 2015.
- ▶ Those with tenure track positions are more likely to list research, not teaching as their primary task.
- ▶ • The U.S.-trained doctoral academic workforce has aged substantially over the past two decades. In 2015, 25% of those in full-time faculty positions were between 60 and 75 years of age, compared with 11% in 1995



# R&D dollars in decline






# Research funding is harder to get

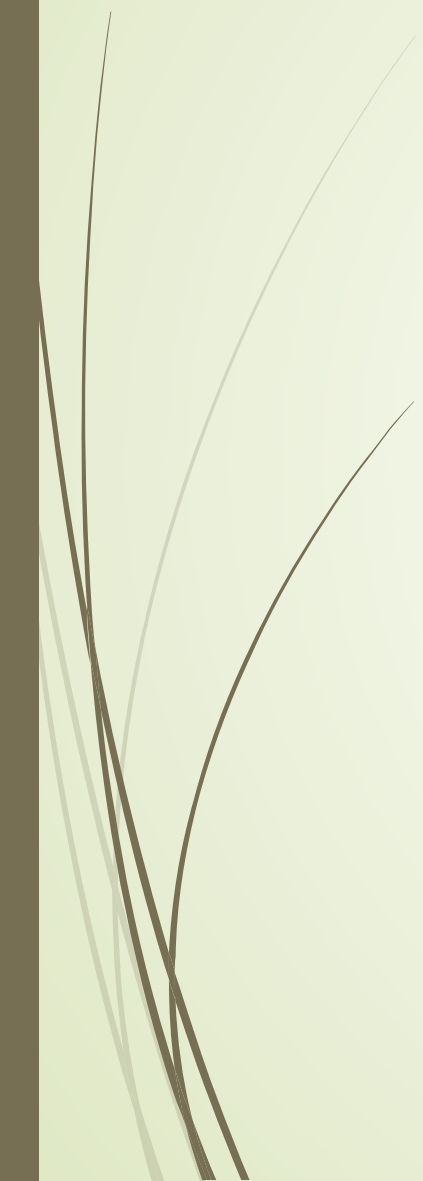
- In 2015, about 41% of doctorate holders received federal research support, compared with 48% during the late 1980s and very early 1990s.
- Among full-time faculty, recent doctorate recipients were less likely to receive federal research support than their more established colleagues
- Federal research support has become less available to doctorate holders in nonfaculty positions, declining from about 60% in 1973 to about 42% in 2015.

# Counterproductive strategies of some faculty members challenge research quality

- ▶ Risk aversion –when success rates for journal articles and grants are low, as has been the case for many years, researchers and reviewers go for the ‘sure bet,’ : incremental research. (Paula Stephan)
- ▶ Publishing many articles by parsing out data and chunking problem into the smallest unit of analysis so they can have lots of papers rather than looking at big problems and issues.
- ▶ Publishing only positive effects because that is what journals favor.



# Scholars may try to adapt to publication bias

- ▶ High impact journals have very high rejection rates
  - ▶ High impact journals favor results with big effects and results that are novel, that may lead faculty, particularly at more elite institutions, to exaggerate effects.
  - ▶ High impact journals favor positive effects.
- 



# Scholarly journals

- ▶ Until the mid 1970s were often owned and operated by learned societies or associations or universities
  - ▶ Not perceived as profit centers
- ▶ The market share of the world's largest research publishing houses has skyrocketed since the 1970s, with five corporations now controlling 50 percent of all the journal articles that are published.
  - ▶ Profit margins of up to 40%





# Business model

- Reed-Elsevier, Taylor & Francis, Wiley-Blackwell, Springer and Sage.
- Scientists create content for free—sometimes even pay to publish
- Publisher then sells back to them, or rather the libraries of the universities
- Are not even responsible for quality control, which is achieved through peer review, another free service

# Academic publishing & Research Quality

- ▶ Retractions and the the decline effect
  - ▶ <http://retractionwatch.com>
    - ▶ Rise in rates due to misconduct higher than overall rate
- ▶ Decline effect
  - ▶ Strength of evidence for a particular finding often declines over time
- ▶ Lack of replication studies
  - ▶ Studies of preclinical medicine show that only 1 out of 5 preclinical trails is reproducible
  - ▶ Studies that try to replicate and show failure usually appear in lower ranked journals than initial studies

Anil Jaiswal, Former U Maryland  
cancer researcher up to 21  
retractions





# Critique of IF Facator

- IF factor is Thomson Reuters formula for ranking journals
- In some cases, it is not calculated but negotiated,
- It is often not not reproducible
- It is not mathematically sound.
- It is a relatively strong predictor of subjective evaluation of a particular journal, but relatively weak predictor of citations
- The higher the journal rank the higher the likelihood of fraud and misconduct in retracted publications



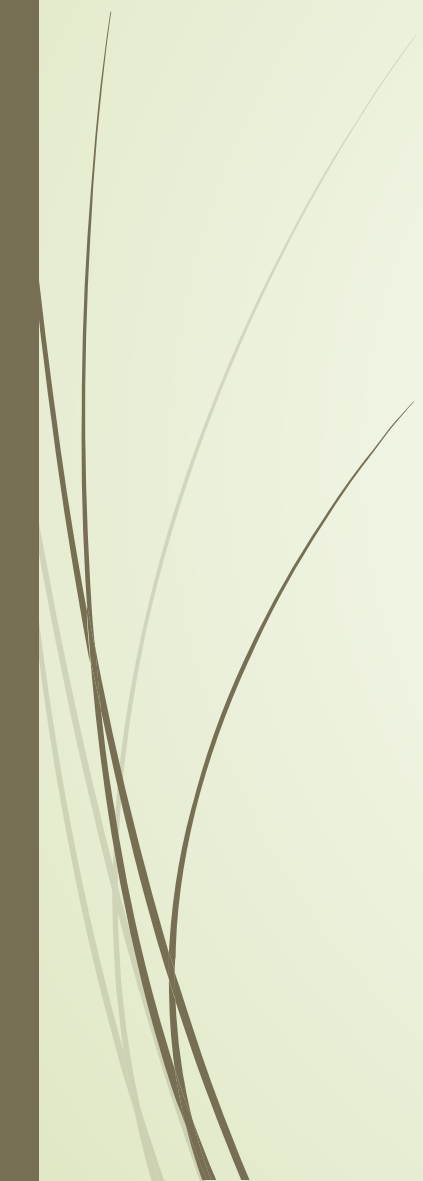
# Problems with peer review

- ▶ Lack of transparency
- ▶ Single and double blind system
  - ▶ Makes reviewers less accountable for what they say
  - ▶ No challenges are possible
- ▶ Permitting authors to suggest reviewers
  - ▶ Possible to suggest reviewers who will give favorable review
  - ▶ Possible to fake reviews
- ▶ Pressure to publish quickly on editors
  - ▶ Bad choices or reviewers, no verification of credentials



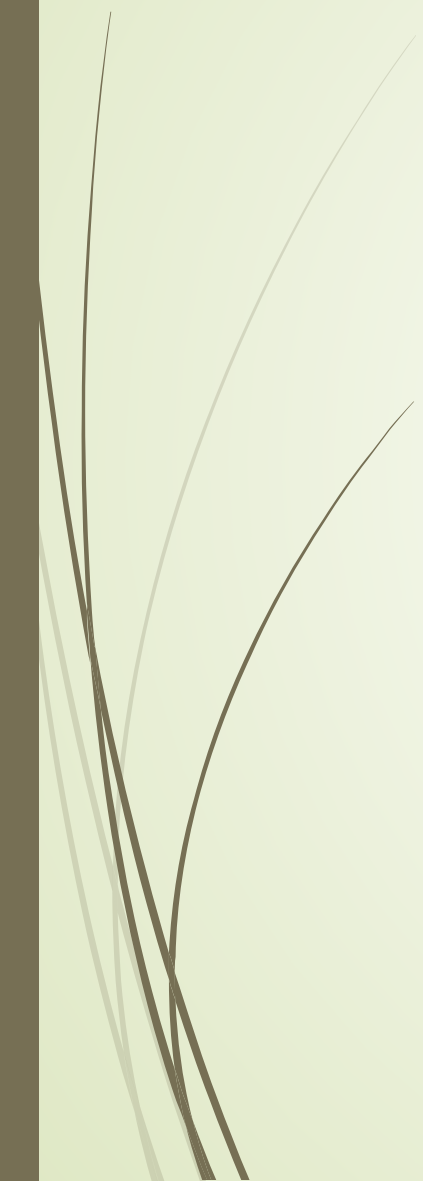


# Access to data

- Enclaved data
  - Public data becomes product
  - Data becomes ever more costly
  - Big data: information in general becomes monetized
- 



# MONETIZATION

- The US: Preference for proprietary knowledge
  - David R. Johnson, *A fractured profession*, 2017
- 

The number of U.S. university patents granted by USPTO continues to increase rapidly, more than doubling between 2008 and 2016, reaching more than 6,600 in 2016.

In the higher education sector, invention disclosures filed through university technology management and transfer offices totaled 22,507 in 2015, up from 13,718 in 2003.

University applications for U.S. patents also increased over time: 13,389 in 2015, nearly doubling from 7,203 in 2003.

US business researchers-sector based researchers produced more than 50,000 peer reviewed publications in 2016. Almost half were co-authored with university researchers and 12% were co-authored with federal agency researchers.

# How it all came about: The usual culprits

- ▶ US: Carnegie Commission on Science Technology and Government, Belfer Center for Science and International Affairs; Brookings Institution, American Enterprise Institute, Council on Competitiveness, Business-Higher Education Forum
- ▶ EU: European Roundtable of Industrialist, Higher Education-Business Forum, Networks of Excellence, Integrated Projects, Knowledge and Innovation Centers



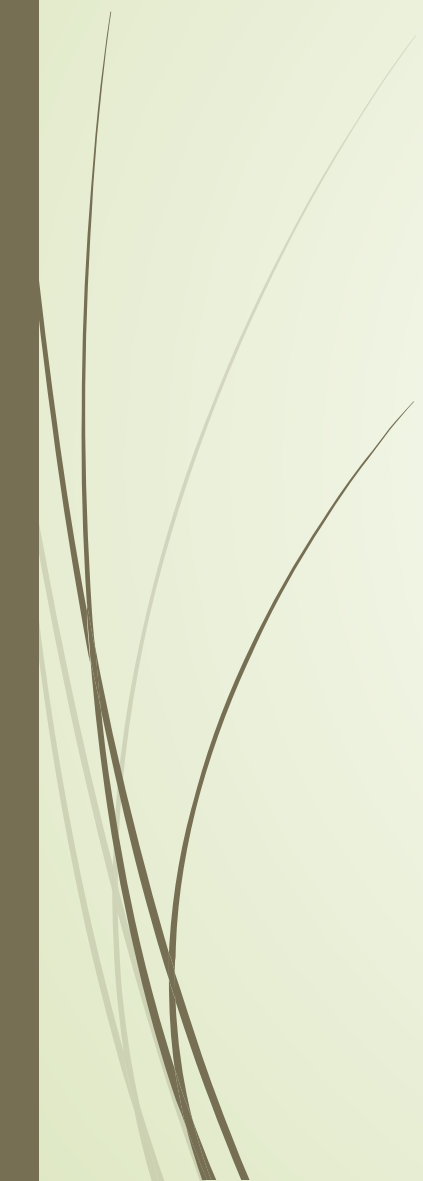
# New forms of intermediating orgs US

- ▶ “dark money” foundations and think tanks tied to the rise of the radical right
  - ▶ Often operate through billionaire’s personal foundations, and are able to contribute millions to universities to foster radical right causes, often without disclosing source of funding
    - ▶ Jane Mayer, 20 : Dark Money





# Family foundations and higher education

- The Scaife family foundations
  - The Bradley family foundations
  - The Olin Family foundations
  - The Koch brothers' family foundations
- 

# Olin Foundation

- ▶ John Olin, president of the Olin foundation and a Cornell grad and trustee, regarded “campus[es] as overrun by scholars with ‘definite left-wing attitudes and convictions’ ” (Mayer p. 100). Olin agreed with Hyack, the radical right Austrian economist, that to conquer politics, one must first conquer the intellectuals.





# The Beachhead Strategy

- ▶ James Piereson, Sr manager, Olin Foundation
- ▶ “the key...was to fund the conservative intelligentsia in such a way that it would not ‘raise questions about academic integrity’ (Mayer p.103). Rather than trying to buy a chair or “dictate a faculty appointment, both of which would ‘generate fierce controversy,’ [the manager] ...suggested that conservative donors [should] look for like-minded faculty members whose influence could be enlarged by outside funding” (Mayer p.103)



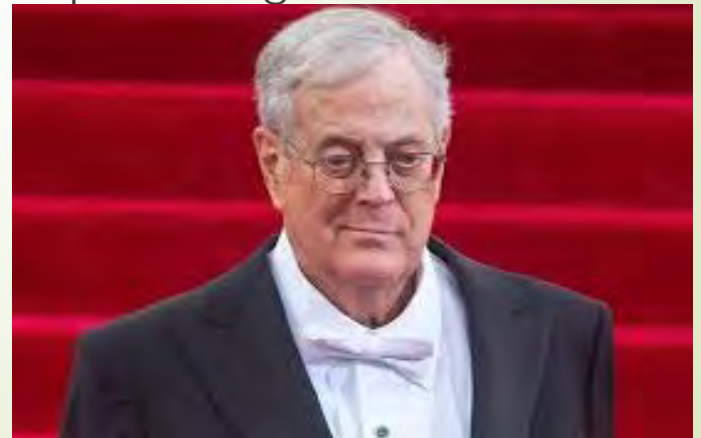
# Law & Economics Program

- ▶ Moved American jurisprudence far to the right
- ▶ “the Olin Foundation spent \$ 68 million underwriting its growth. Like an academic Johnny Appleseed, the Olin Foundation underwrote 83 percent of the costs for all Law and Economics programs in American law schools between the years of 1985 and 1989. Overall, it scattered more than \$ 10 million to Harvard, \$ 7 million to Yale and Chicago, and over \$ 2 million to Columbia, Cornell, Georgetown, and the University of Virginia (Mayer) p. 107).
  - ▶ Largest donation \$18 million to Harvard, happily accepted by Derek Box



# KOCH BROTHERS

- ▶ David is a life-time MIT trustee, and Charles is on the Board of the conservative Mercatus Center at George Mason, which he funds. Their multiple foundations gave almost \$70 million to US colleges and universities.
- ▶ They want more for their \$, & a greater voice in how it is spent.
- ▶ George Mason University, which has received more than \$34 million from the Kochs since 2011, has a Memorandum of Agreement with the Kochs, but the campus community is unable to discover what is in it because GMU keeps these grants in an arms-length private foundation



# Challenges to research quality

## Intermediating organizations

- ▶ Far-right foundations use money with the deliberate intent of re-shaping academic knowledge by supporting professors who support their viewpoints..
- ▶ Few universities have turned down these gifts and professors have not been reluctant to take positions in departments and institutes funded by them.
- ▶ knowledge is both monetized in that market fundamentalism is promoted, and politicized in that ideology is the test for support by these radical right intermediating organizations



# Elements that give rise to neo-nationalism

- Violence and/or war that drives populations to migration
- Segments of population in receiving state define themselves as the legitimate people, a group of obligatory solidarity, an extended family knit together by obligations of mutual support; and the people as an ethnic community knit together, undifferentiated by distinctions of honour and prestige, but united through a common destiny and shared culture
- Wealth inequality



# EU & US

- Neo-national parties in Europe & US have proliferated, morphing from far-right to neo-national.
- Income and wealth inequality play a part in what happens



# Challenges to RQ in EU

- ▶ Rather than intermediating organizations—although these may play a part--the state and political parties challenge academic freedom. In most cases, political parties seeking to expand their hold on nation states approaching the brink of war, at war, or threatened by waves of immigration try to stop critique and dissent in academe, on the part of both students and faculty.
  
- ▶ Hungary, Poland, Turkey









# TURKEY & the COUP

- ▶ After attempted coup by military, Recep Tayyip Erdogan and the AK Parti targeted universities as sites of opposition.
- ▶ In 2016, scholars who signed the Academic Petition for Peace were investigated, detained, fired, & their travel restricted.
- ▶ Almost 1000 professors, staff and students have been detained & arrested, and there are warrants on over 300 others.





2017

# Free to Think

Report of the Scholars at Risk  
Academic Freedom Monitoring Project





# Poland, Duda, Law & Justice Party (PiS)

- ▶ 2017 Duda worked to put pressure on Holocaust historians and to allow a stronger voice in government institutions that deal with Polish history.
- ▶ Heroism and glorious episodes of history are to be emphasized.
- ▶ A law is proposed that calls for 5 years imprisonment for anyone who blames Poland for Nazi or Stalinist atrocities.



Princeton Professor Jan Gross, holocaust historian, who received Order of Merit from Poland for his opposition to Communism. After publication of *Neighbors*, 2001, Duda's government is trying to strip him of this honor.





# US



- ▶ Wave of war and violence began with 9/11, as did rise of anti-immigrant sentiment, and the call to make “America great again.” (Donald trump)
- ▶ 2003: Dismissal of Professor Sami al-Arian, computer scientist & Palestinian nationalist, from University of S. Florida.
- ▶ 2009: Dismissal of Ward Churchill, Professor of Ethnic studies, dismissed from the University of Colorado.

Professor al-Arian



Professor Churchill





# AAUP Committee A special report targeted the Trump administration

▶ International scientific exchange

▶ National security and economic (in)security

*This is no joke.*

*This is not a game.*

*Xiaoxing Xi*

*Prominent physicist*

*Wrongly accused of espionage in 2015*




# Professor Michael Mann





# Union of Concerned Scientists

- ▶ "A clear pattern has emerged over the first six months of the Trump presidency: multiple actions by his administration are eroding the ability of science, facts and evidence to inform policy decisions, leaving us more vulnerable to threats from public health and the environment. The Trump administration is attempting to delegitimize science, it is giving industries more ability to influence how and what science is used in policy making, and it is creating a hostile environment for federal agency scientists who serve the public" (p.2).



# Neo-nationalism and research quality

- The repercussions can include jail time, deportation, and death.
- Although more abstract, the undercutting of scientific authority is equally consequential. Criteria other than evidence based scientific judgment are increasingly used to inform far-reaching public policy decisions.
- Neo-nationalists often prefer ideology unchallenged by evidence..