COVID-19's Impact on Research from a People Perspective

October 22, 2020

Moderator:

Kristin West, Director, Research, Ethics & Compliance

Panelists:

Dr. Brendan Cantwell, Associate Professor of Education Administration, Michigan State University

Dr. Kay Lund, Director of the Division of Biomedical Research Workforce, NIH

Dr. Kyle Myers, Assistant Professor of Business Administration, Harvard Business School

COGR
Council On Governmental Relations

International trainees and American academic science: What might the pandemic mean?

Brendan Cantwell, PhD

MICHIGAN STATE UNIVERSITY | Department of Educational Administration
College of Education

Keep moving

The great slowdown

The sojourner scientist

Between 1996 and 2002 Emmanuelle Charpentier held 5 postdoctoral positions, 4 of which were located in the United Sates

Scientific and personal growth

"We were more focusing on studying one plant hormone and now we're focusing on a totally stuff because of the results that we got and, and I consider that's even affecting the other lab members because they're also having to change their approach to that different condition that we found now because my boss is now trying to apply for a grants on that part."

"After I came here I kind of finally realized the difference, you know, with Chinese culture, American culture, European culture. They're all different... I feel like if I stay in China I might not have a lot of opportunity collaborating with people around the world."

Cantwell, B., Lee, J.J. and Mlambo, Y.A., 2018. International graduate student labor as mergers and acquisitions. *Journal of International Students*, 8(4), pp.1483-1498.

A mutually beneficial exchange

- A deep well of talent
  - 54% of postdocs and 34% of graduate students (NCSES).
  - Foreign national researchers shown to be more productive on average than US citizens and premiant residence.
  - International postdocs and PhD students associated with research funding.
- Abundant opportunity
  - World leading training and facilities.
  - Relatively open immigration system through universitas.
  - Good quality of life.

Most PhDs stay in the country … but the next opportunity is needed to retain them

US citizens:US

US citizens:Abroad

Non-US citizens:US

Non-US citizens:Abroad

US

Abroad
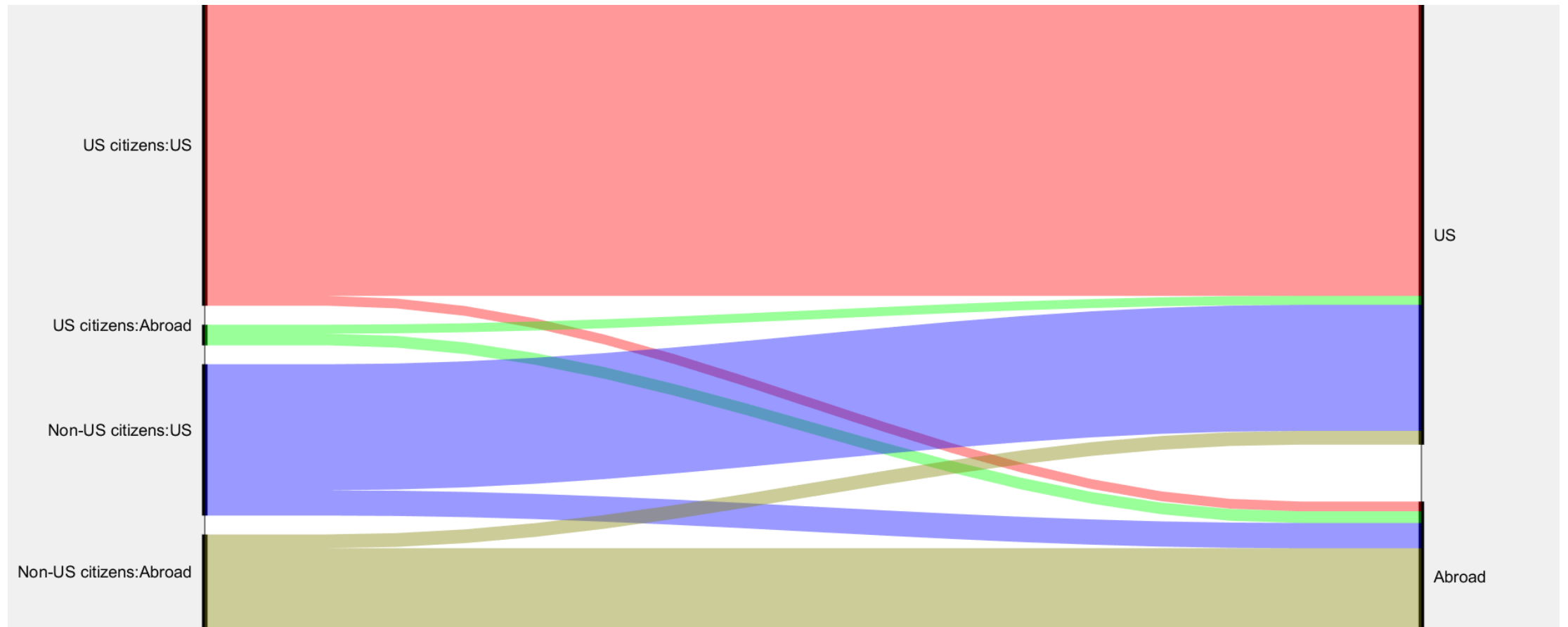
Earned doctorates from US universities 2001 – 2011, location of work 2 years beyond the PhD by citizenship and reported intention at the time of graduation. Source: Kim and Cantwell analysis of SDR/ISDR.
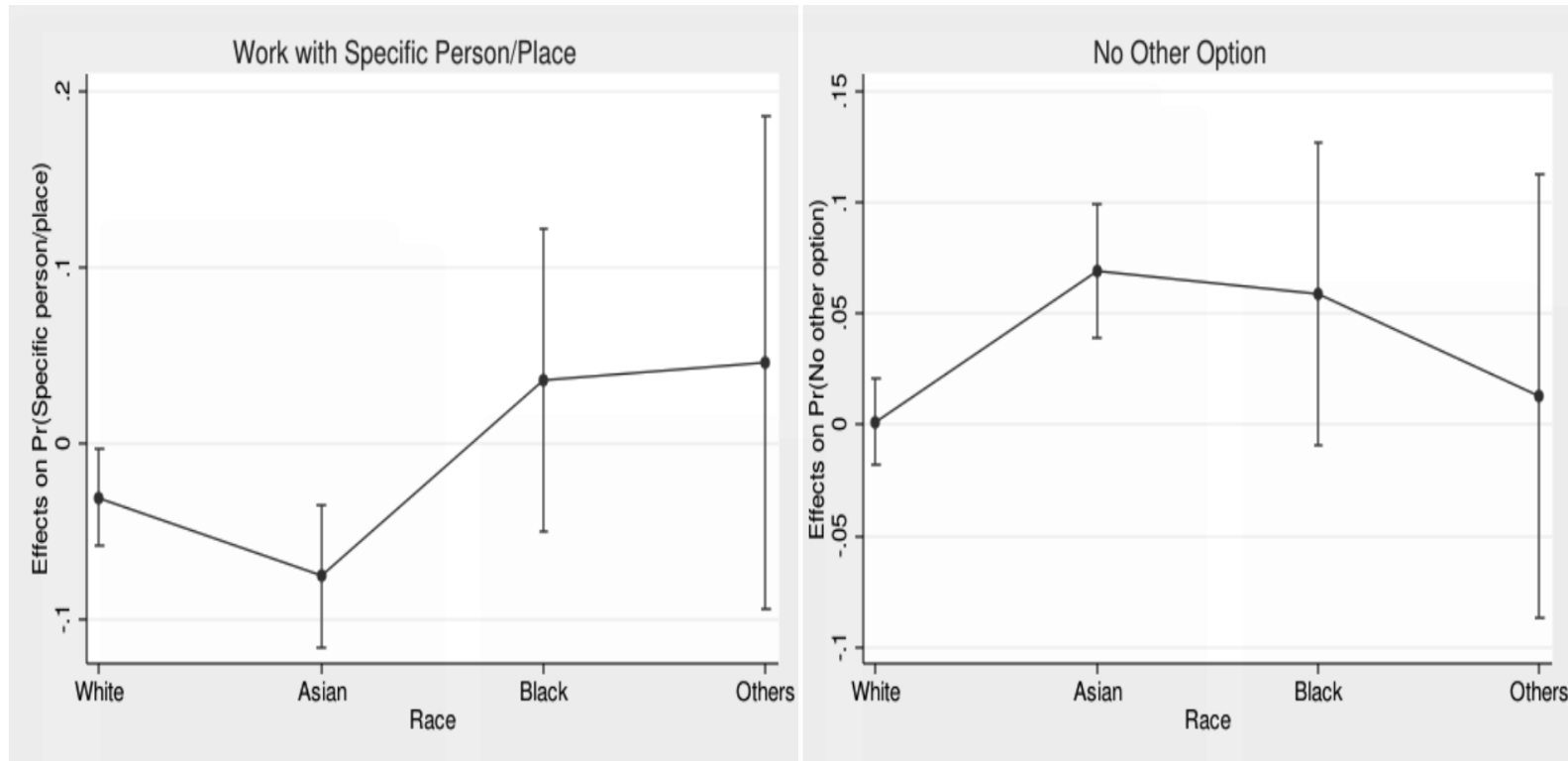
A postdoc is often the next job
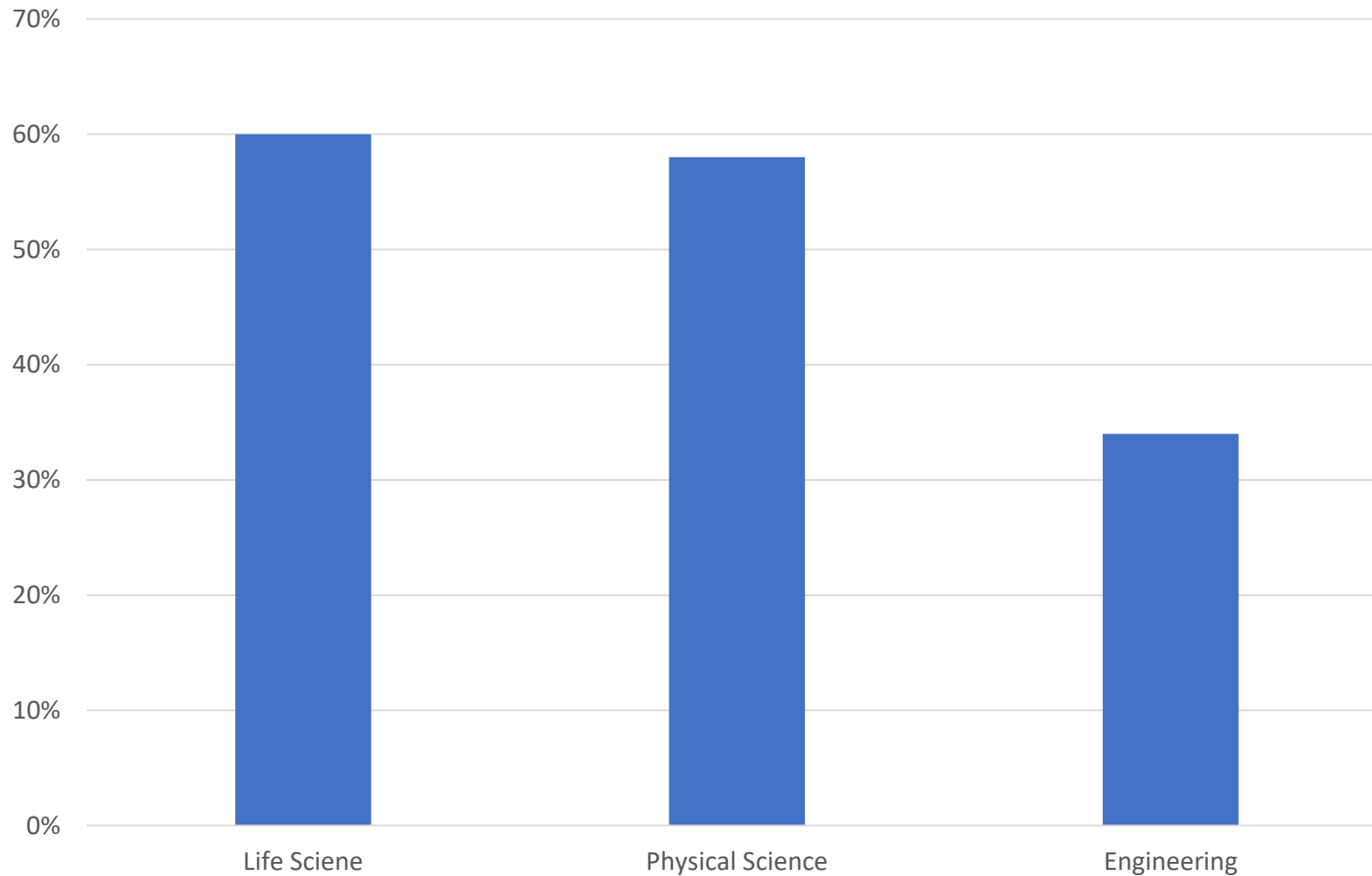
Source: 2018 SED

Next job of necessity

Huang, Y., Cantwell, B. and Taylor, B.J., 2016. Reasons for Becoming a Postdoc: Differences by Race and Foreign-Born Status. Teachers College Record, 118, p.110308.

PI dependence and visa insecurity

"[my PI] said that in biochemistry students have to do at least five years of research. So now it's even five years and he didn't basically let me do my comprehensive exam until last month... But everyone does his or her comprehensive exam in the third year. He did that because he was afraid that I may leave."

"If your PI stopped your visa, he terminates your I-20, you are not, you are not legally staying here. It's a big problem."

Cantwell, B., Lee, J.J. and Mlambo, Y.A., 2018. International graduate student labor as mergers and acquisitions. *Journal of International Students*, 8(4), pp.1483-1498.

Covid-19 era slowdown and challenges

- Roadblocks to finding the next job
  - Individual work time lost to pandemic disruption
  - Lab-level disruptions
  - Travel disruptions
  - Hiring freezes
  - Budget cuts
  - Slowdown of visa and other administrative processing
  - More restrictive immigration proposals

Covid-19 in context of a changing world

- US pandemic response leaves something to be desired
  - Covid-19 cases University of Georgia: 3,888 (NYT, 10/14)
  - Covid-19 cases Taiwan: 530 (NYT, 10/14)

- CWTS Liden Rankings
  - 2011: 10/10 & 18/20
  - 2918: 4/10 & 7/20

Some ideas for what campuses can do?

- Lobby the federal government and stay active on proposed DHS rule changes.
- Learn about and tell the stories of trainee / early career and international researchers. Message on Covid-19 contributions.
- Continue to work on travel, visa, remote-work supports.
- Send supportive messages and don't let early career internationals feel taken-for-granted or disposable.
- Work with academic departments and PIs to develop strategies for recruitment and retention.
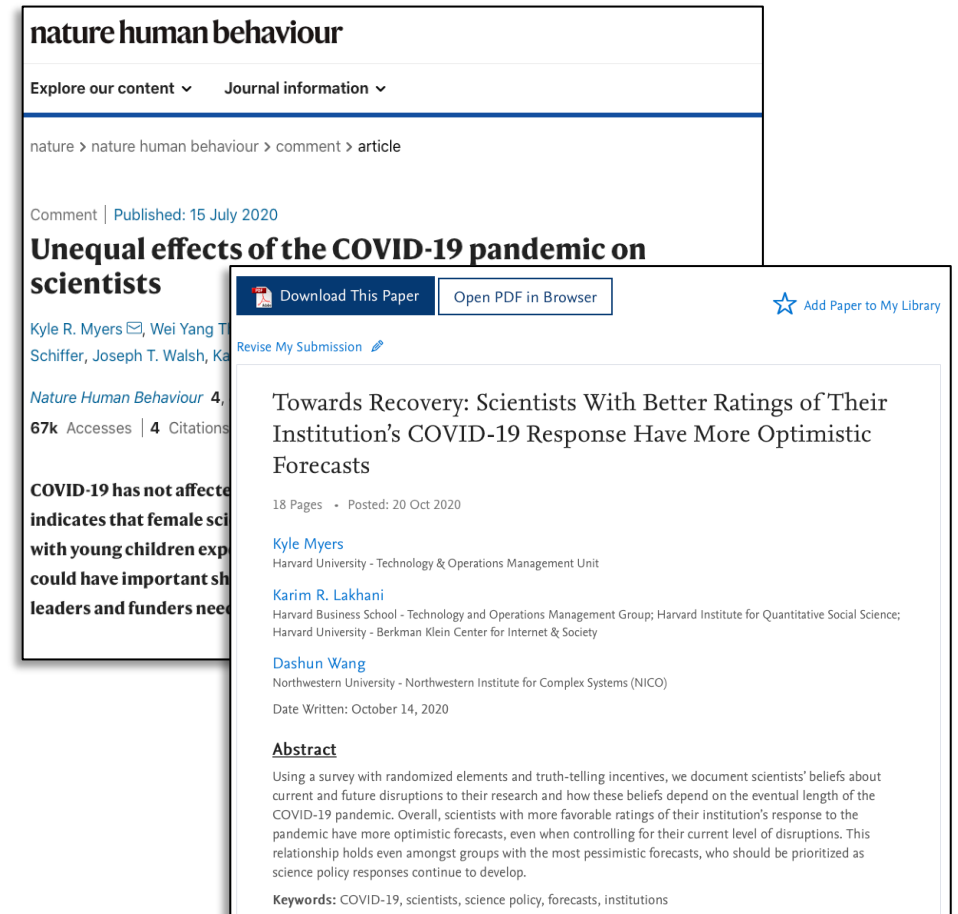
Broad survey effort: Harvard + Northwestern

- **Sampling**
  - Academic faculty and P.I.s; all publishing fields
  - U.S., Canada, and Europe

- **Wave #1, April**
  - <u>Focus</u>: how did / are you spending your time?

- **Wave #2, June-August**
  - <u>Focus</u>: what is your forecast for the next two years?

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Comment | Published: 15 July 2020

Unequal effects of the COVID-19 pandemic on scientists

Kyle R. Myers ✉, Wei Yang T...
Schiffer, Joseph T. Walsh, Ka...

Nature Human Behaviour 4, ...
67k Accesses | **4** Citations

COVID-19 has not affecte...
indicates that female sci...
with young children exp...
could have important sh...
leaders and funders nee...

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Towards Recovery: Scientists With Better Ratings of Their Institution's COVID-19 Response Have More Optimistic Forecasts

18 Pages · Posted: 20 Oct 2020

Kyle Myers
Harvard University - Technology & Operations Management Unit

Karim R. Lakhani
Harvard Business School - Technology and Operations Management Group; Harvard Institute for Quantitative Social Science; Harvard University - Berkman Klein Center for Internet & Society

Dashun Wang
Northwestern University - Northwestern Institute for Complex Systems (NICO)

Date Written: October 14, 2020

Abstract

Using a survey with randomized elements and truth-telling incentives, we document scientists' beliefs about current and future disruptions to their research and how these beliefs depend on the eventual length of the COVID-19 pandemic. Overall, scientists with more favorable ratings of their institution's response to the pandemic have more optimistic forecasts, even when controlling for their current level of disruptions. This relationship holds even amongst groups with the most pessimistic forecasts, who should be prioritized as science policy responses continue to develop.

Keywords: COVID-19, scientists, science policy, forecasts, institutions

Wave #1 questions

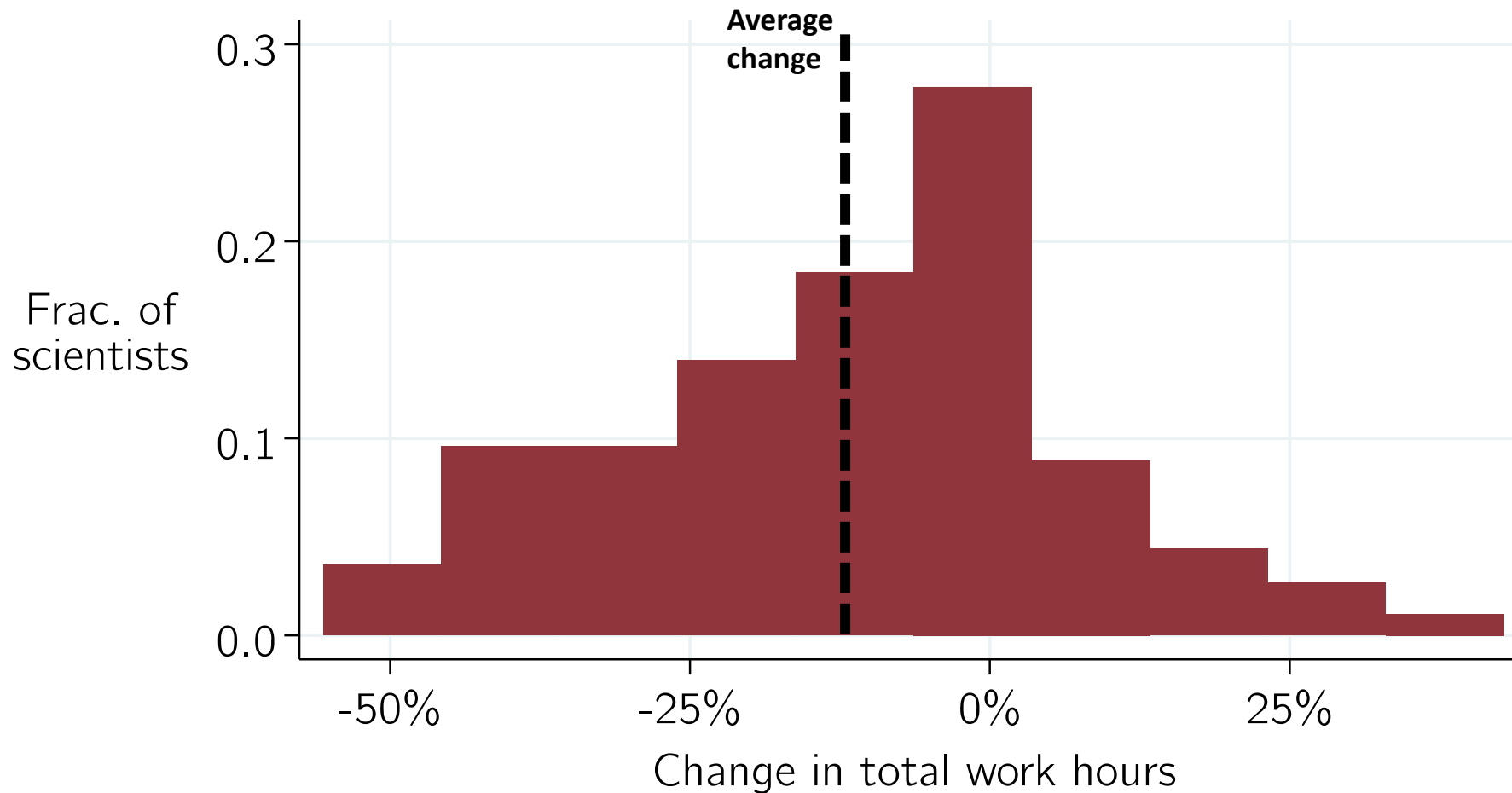How bad are things right now (in April)?

Characteristics

- Demographics
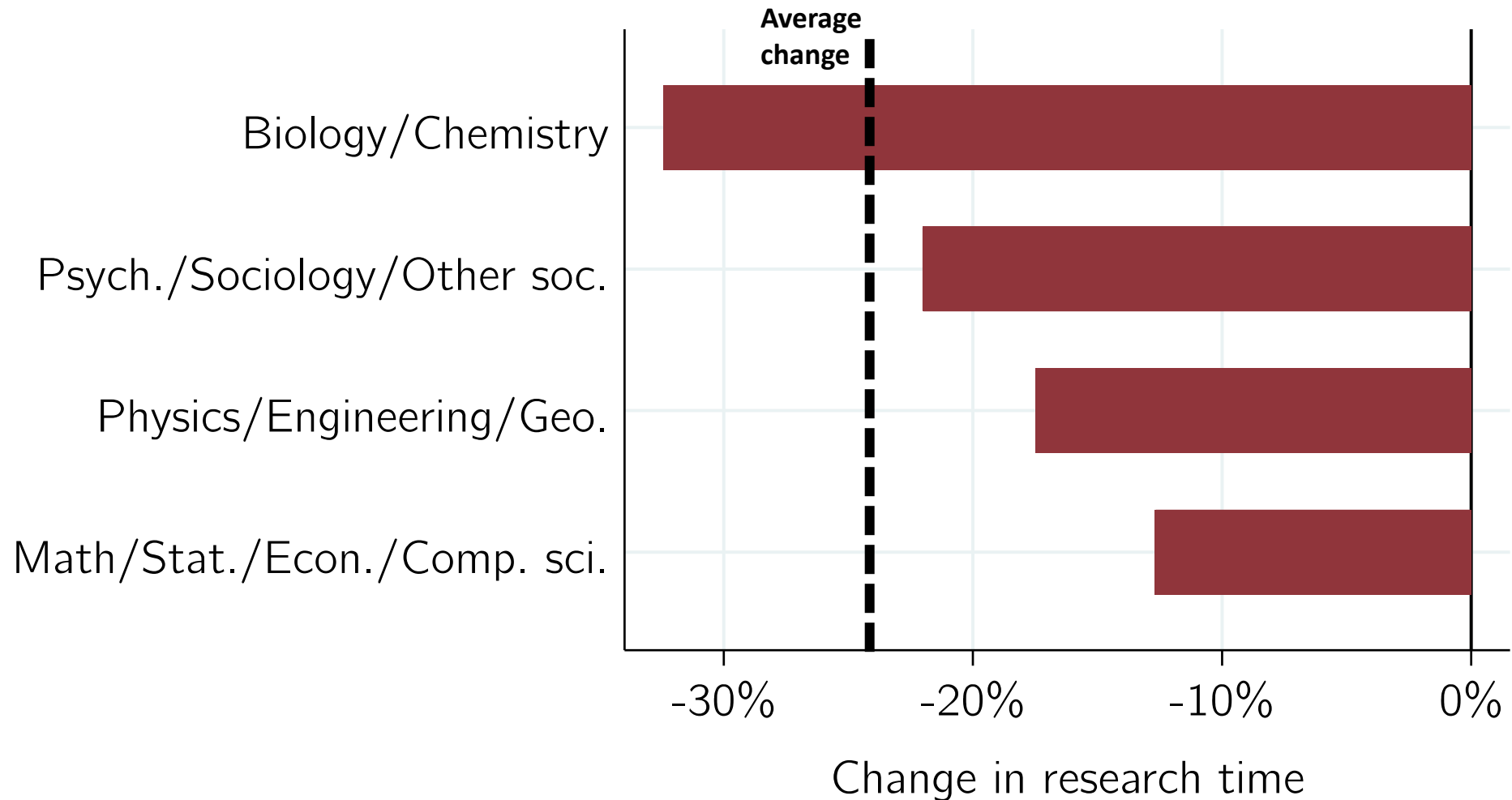
- Partner, dependents

- Field

- Funding

Time allocation

- How much time did / do you spend:
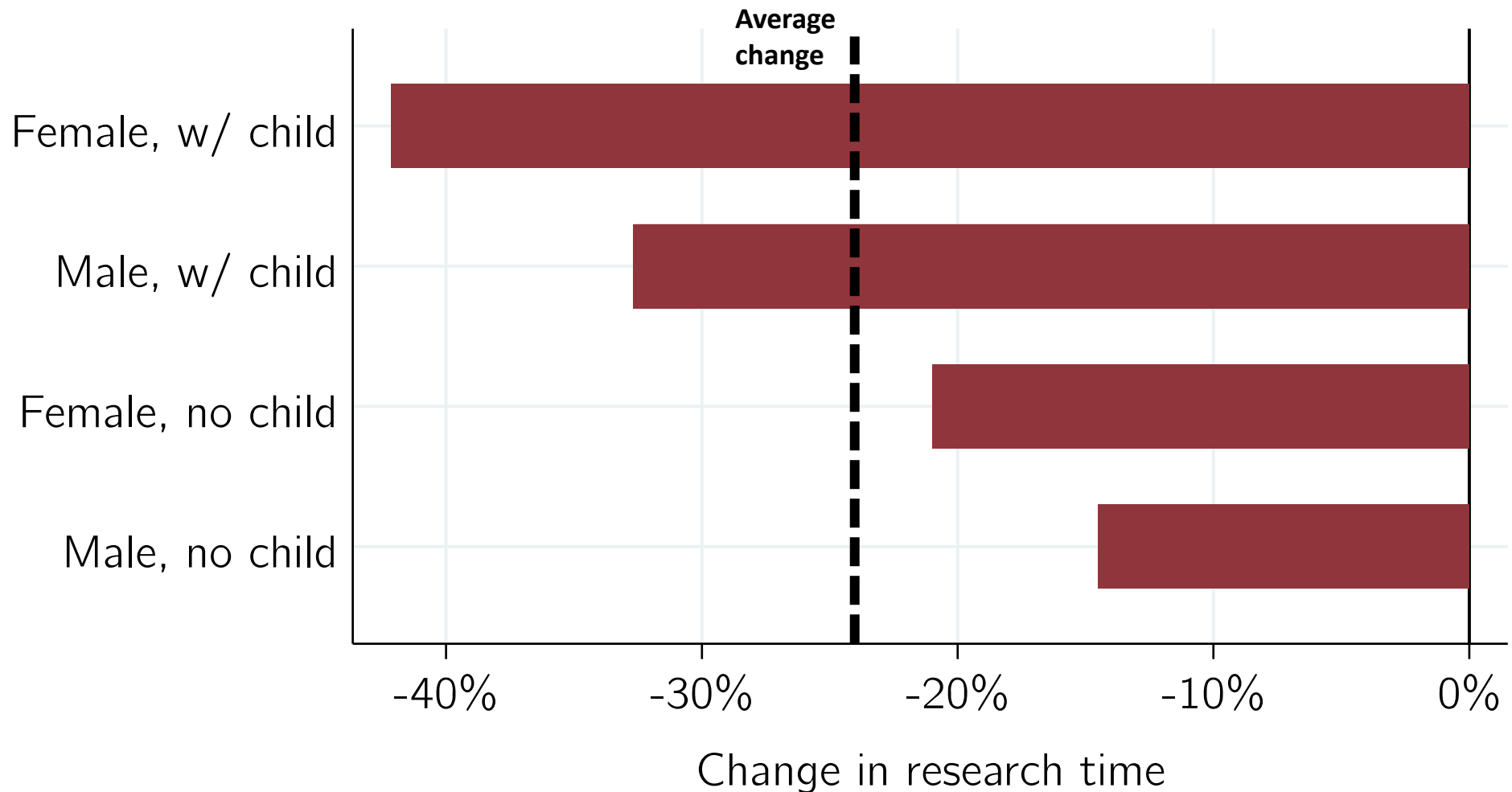 - Teaching
  - Researching
  - Fundraising
  - All other

Overall, very different experiences in work time

Lost research time, by field

K. Myers | Harvard | COGR: Covid-19

Lost research time, by characteristics

K. Myers | Harvard | COGR: Covid-19

Wave #2 questions

How bad will things be over the next two years?

Same as wave #1

- Characteristics

- Time allocations

Forecast: inputs & outputs

- Research funding

- Publication output

Forecast setup

"Assuming that the pandemic ends in _____ months..."

Forecast: startup costs

- Time and funding to resume a *"normal pace of work"*

The "Research Disruption Index"

- Aggregate responses to 5 forecasts into 1 number

- Unit: standard deviations (s.d.)

- Larger = worse off

1 s.d. ↑ equals either:

- 20 p.p. less funding [avg. -18%]

- 22 p.p. fewer pubs. [avg. -11%]

- 16 p.p. lower pub. quality [avg. -6%]

- 2 months longer to restart [avg. 2.5 months]

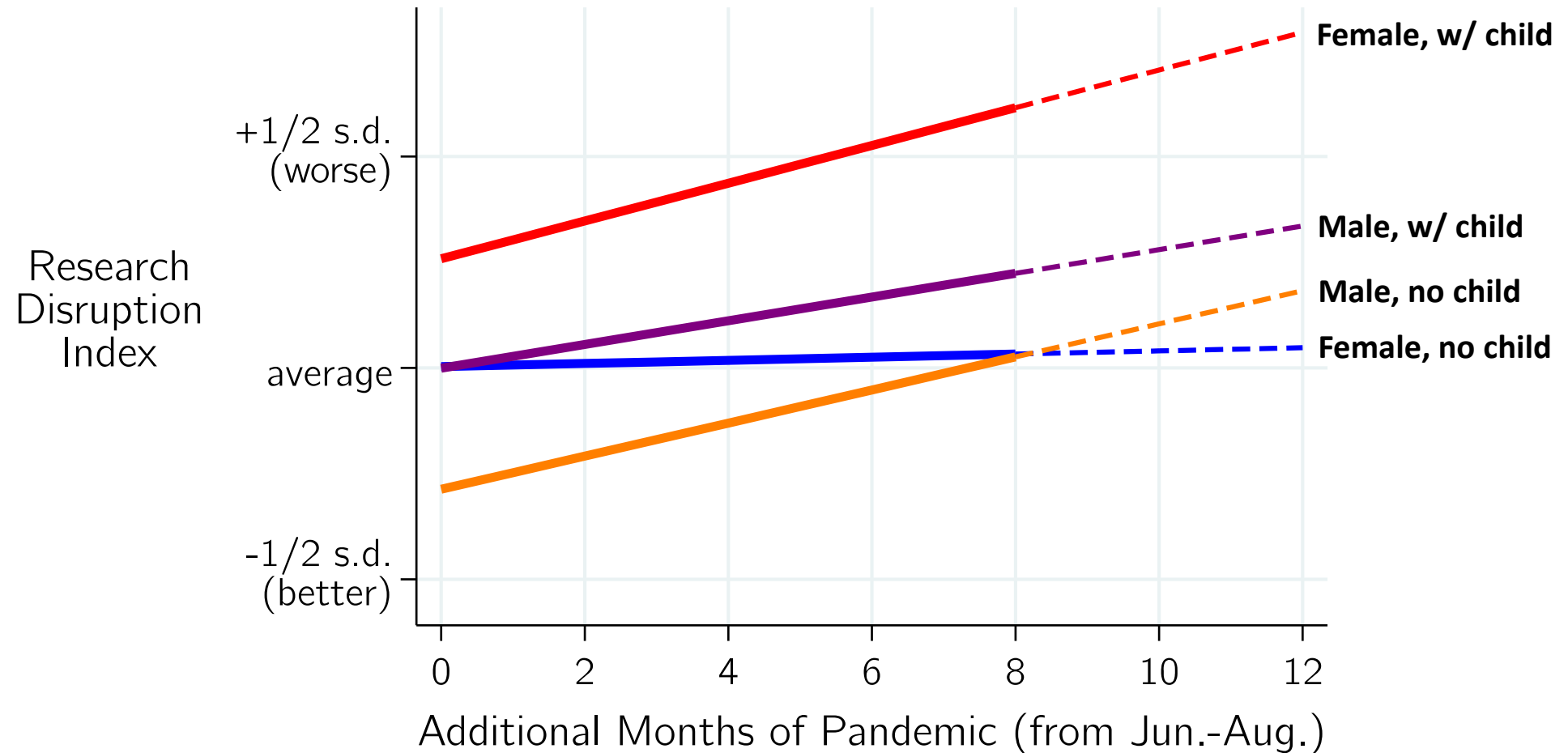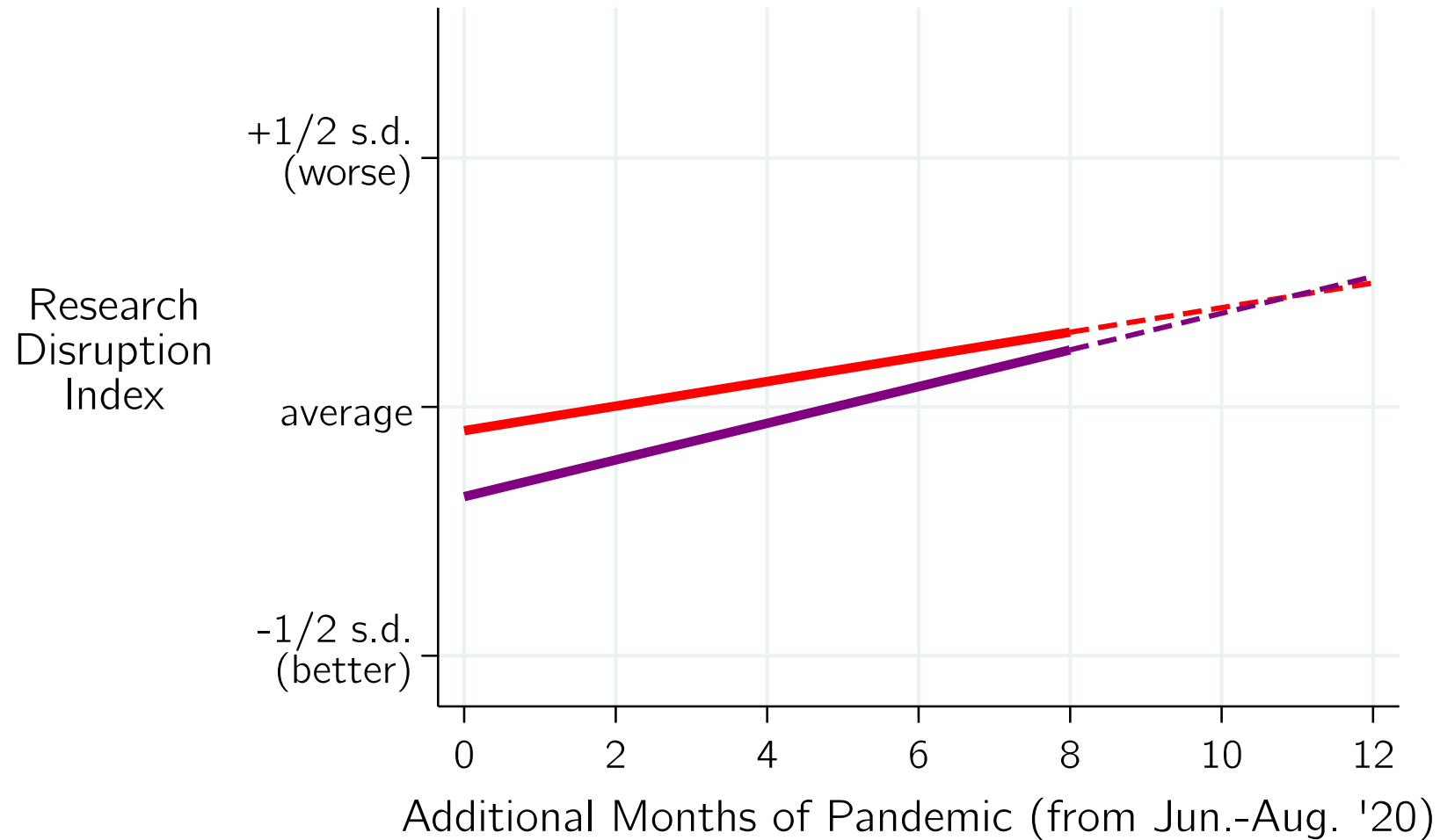- 35 p.p. more $ to restart [avg. 38%]

Disruption forecasts, overall

Research
Disruption
Index

+1/2 s.d.
(worse)

average

-1/2 s.d.
(better)

0   2   4   6   8   10   12

Additional Months of Pandemic (from Jun.-Aug.)
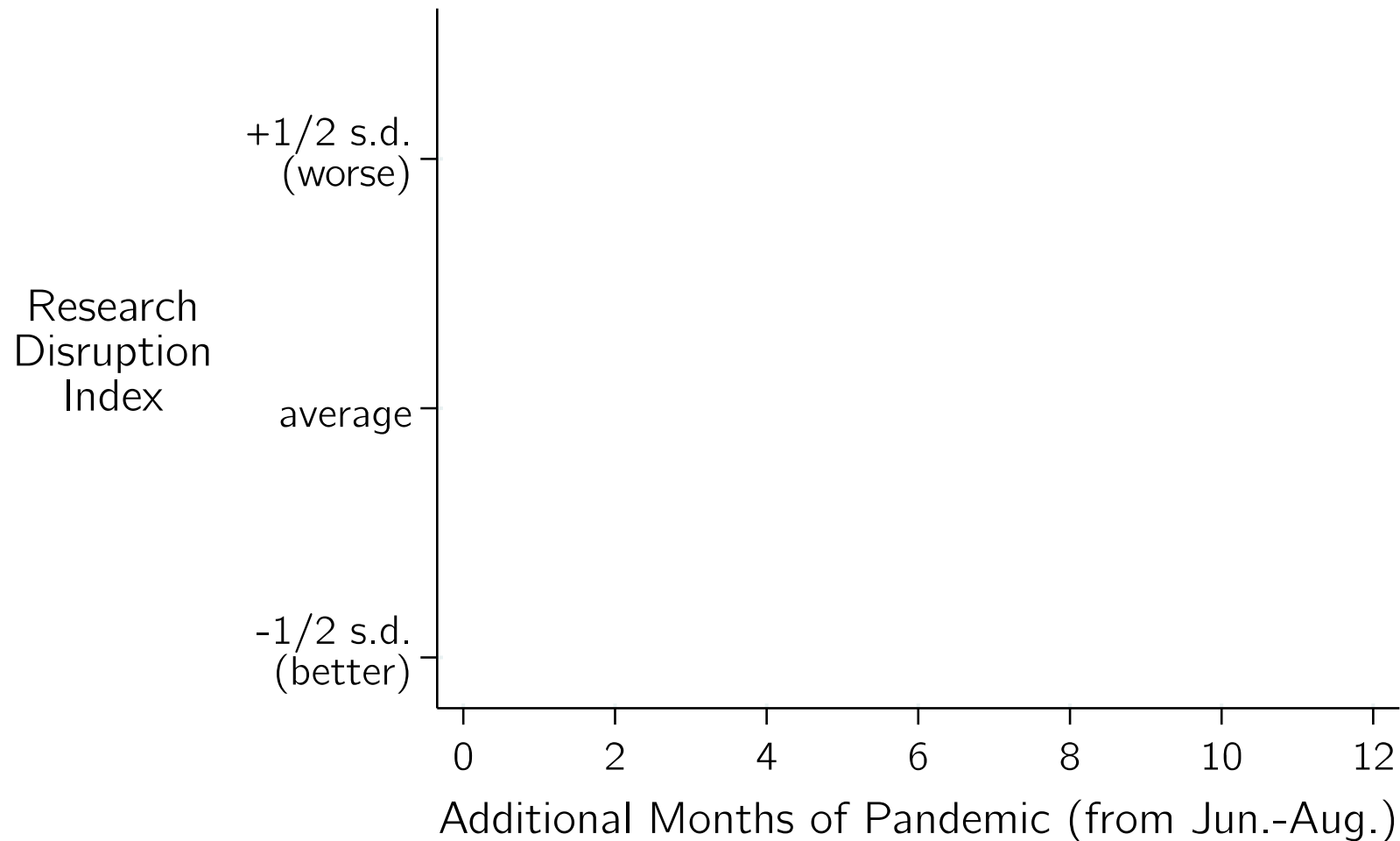
Disruption forecasts, overall
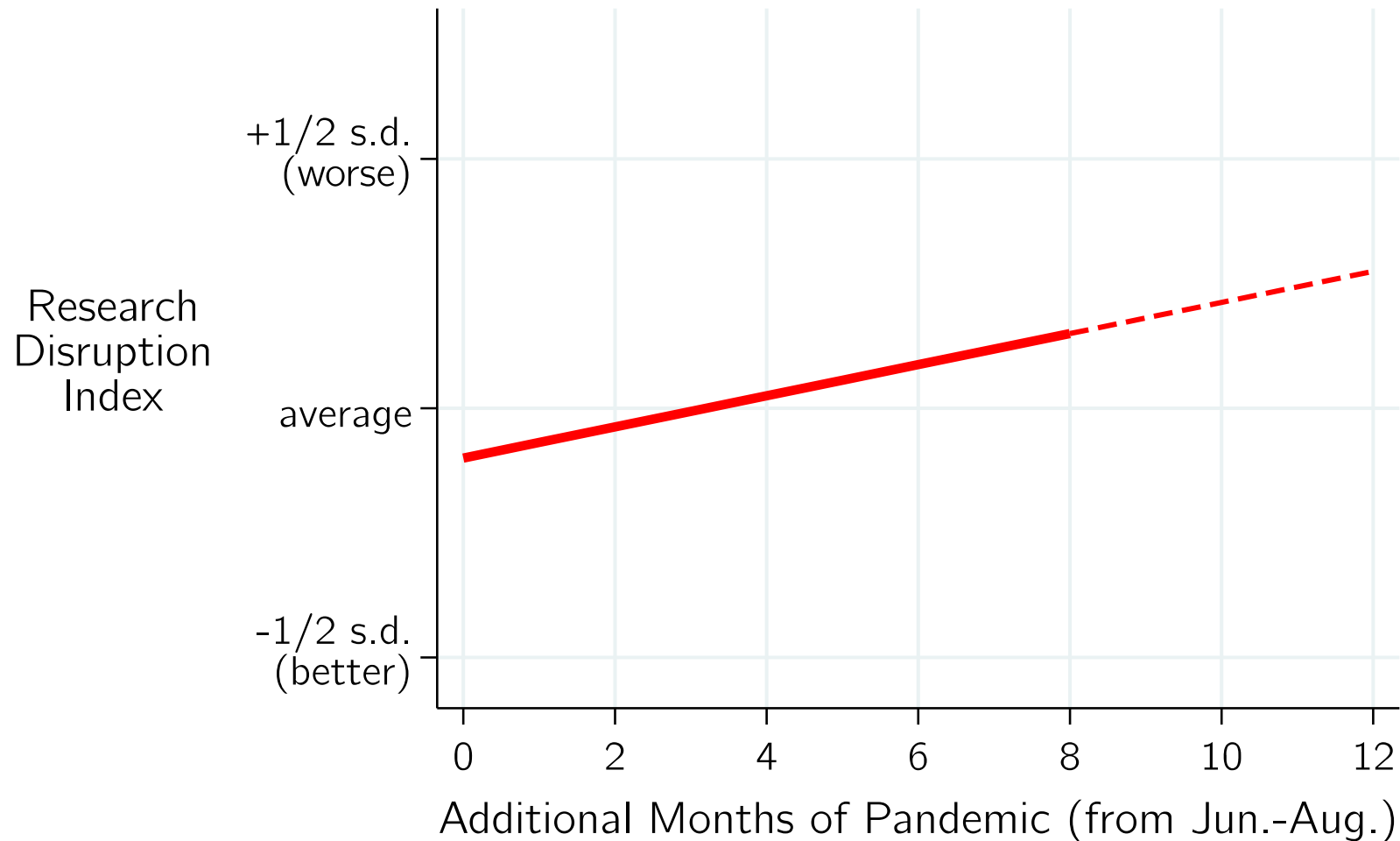
Disruption forecasts, by field
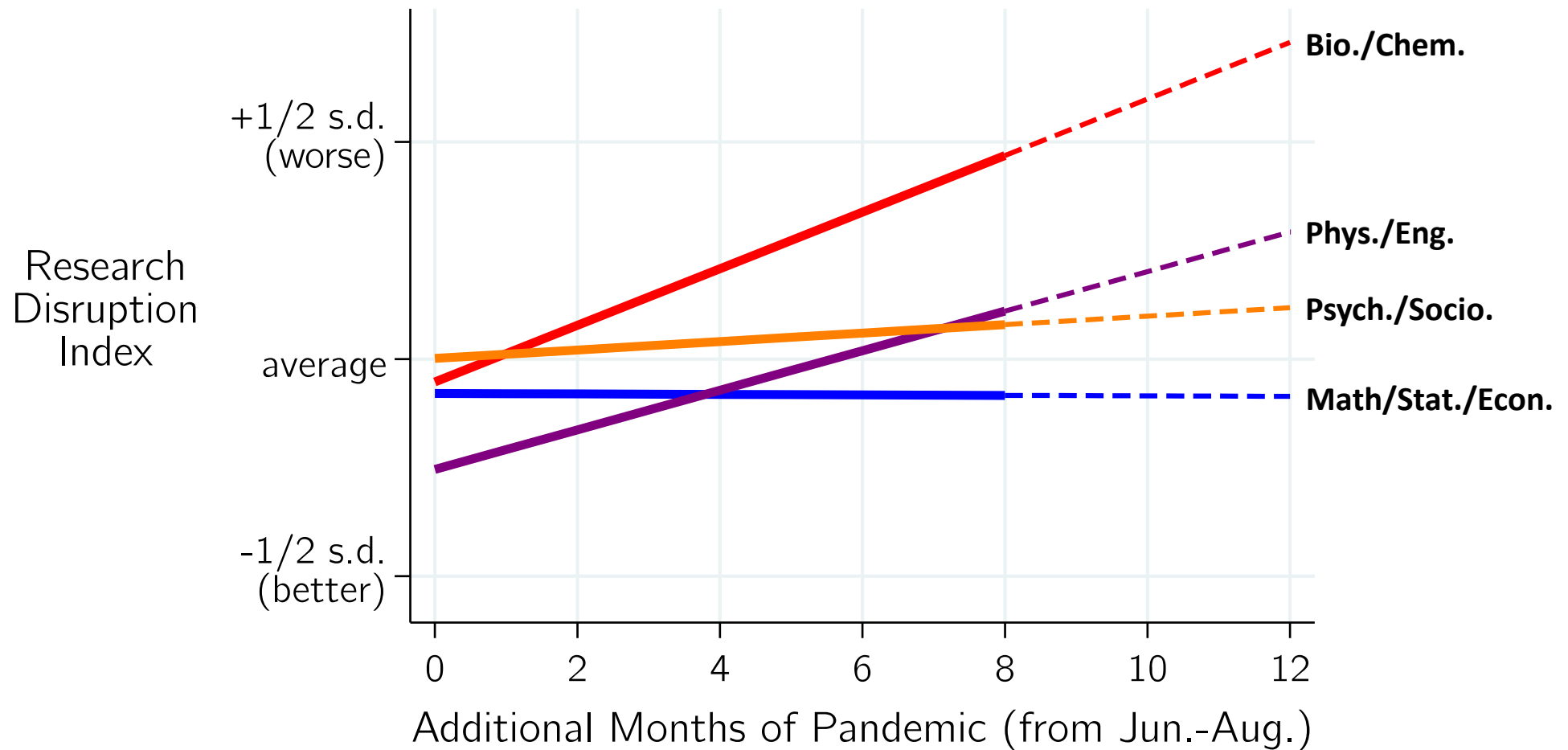
Disruption forecasts, by characteristics
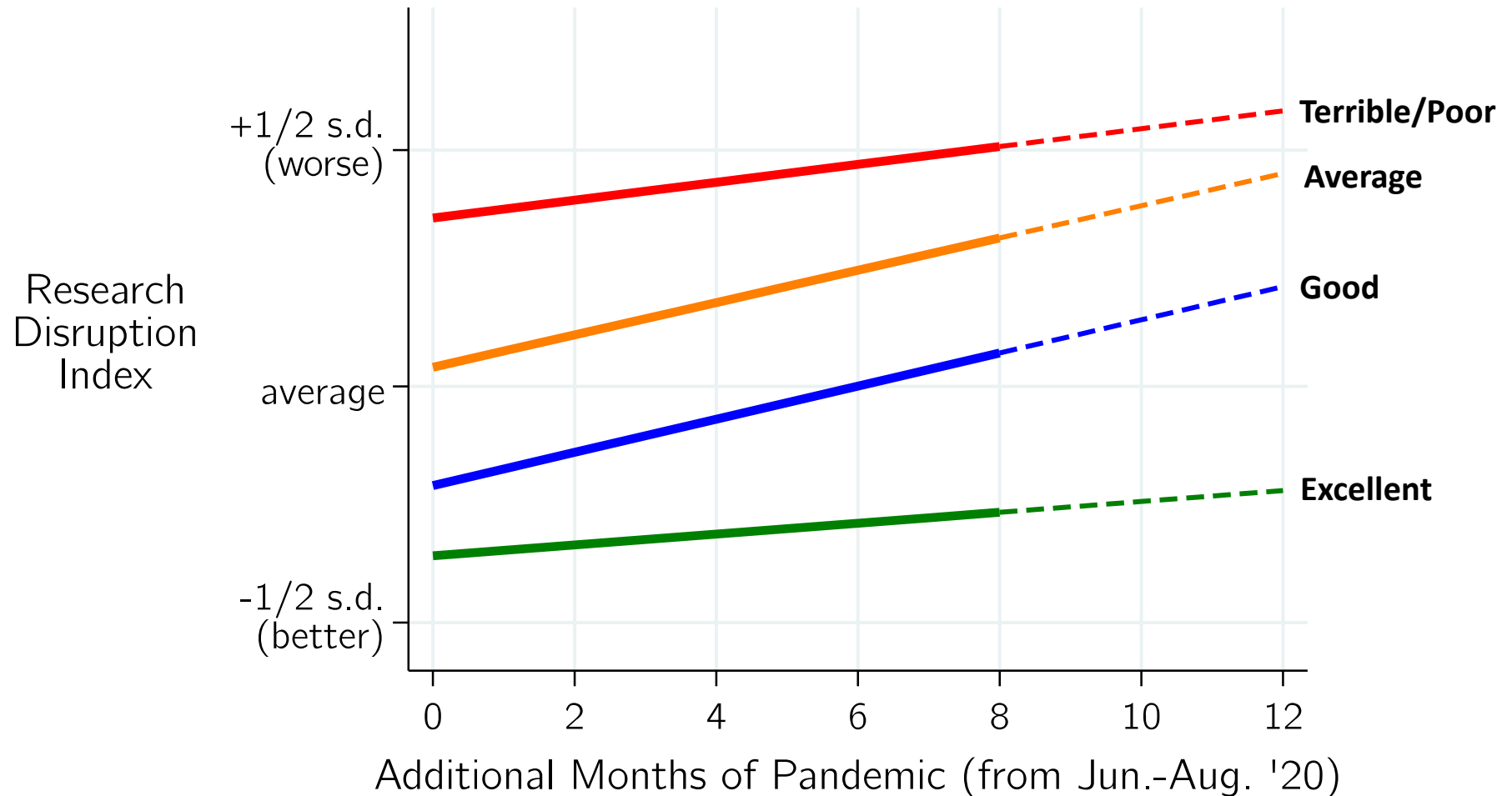

K. Myers | Harvard | COGR: Covid-19

Similar forecasts in/out of U.S.

Scientists with better ratings of their institution have more optimistic forecasts

A suggestive correlation

- A *null hypothesis*: the pandemic is so large, no institution can help

- Graph we just looked at suggests otherwise

- Regression adjustment
  - After accounting for differences in characteristics, field, funding, change in time allocations…
  - We persistently find: institutional approval ↔ forecast optimism

The story so far

Hardest hit:

- *People-features*: with young child; women

- *Science-features*: "bench sciences" – work involves specific equipment & locations, large in-person teams, or is time-sensitive

There has been **many different degrees of disruption**, and some institutions seem to have found ways of helping

As policies continue to develop, note:
Some lessons from work on gender disparities

Equal policies can create inequities

The value of flexibility

Equal but Inequitable: Who Benefits from Gender-Neutral Tenure Clock Stopping Policies?

Heather Antecol

Kelly Bedard

Jenna Stearns

AMERICAN ECONOMIC REVIEW
VOL. 108, NO. 9, SEPTEMBER 2018
(pp. 2420-41)

A Grand Gender Convergence: Its Last Chapter

Claudia Goldin

AMERICAN ECONOMIC REVIEW
VOL. 104, NO. 4, APRIL 2014
(pp. 1091-1119)

Information Related to COVID-19 for NIH Applicants or Recipients of NIH Funding

P. Kay Lund PhD

Director Division of Biomedical Research Workforce (DBRW)

Office of Extramural Research (OER), Office of Director (OD)

NIH

NIH National Institutes of Health
Office of Extramural Research

Two COVID surveys (Extramural Institution & Researcher) were developed by a Coronavirus Survey Development Group with the following schedule:

- Pilot testing of the two surveys was done to capture feedback on the user experience of the surveys

- The surveys were the launched to a large extramural community in October (Extramural Institution launched early October & Researcher launched 10/14/2020)

- Surveys will be active for up to three weeks (input appreciated on whether it could/ should be longer)

- Surveys were launched through a third-party vendor & on the Qualtrics survey platform

- Surveys each take about 20 minutes to complete.

- Responses are confidential & anonymous & all questions are optional.

- ***NIH is creating a plan for how and when to share results & will update the community on the plan.***

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Surveys on the Impact of COVID-19 on Extramural Institutions: Launched early October (for up to 3 weeks)

Audience: A single research leader e.g. Vice President for Research, Vice Dean for Research, Chief Medical Officer at:

- the top-funded 500 domestic institutions based on FY2019 NIH awards
- all schools in the Association of American Medical Colleges (AAMC)
- minority serving institutions that received grant awards in FY2019

Goals of the Institution Survey

- Understand overall challenges faced by institutions during the COVID-19 pandemic
- Whether & to what extent research activities have been put on hold
- What specific research activities have been impacted
- Expected financial impacts on the institution
- Impacts on the research workforce, including budget cuts
- How institutions are prioritizing operations to restore research activities
- Impact on tenure-track researchers & re-opening policies

Researcher Survey
Launched 10/14/2020 (for up to 3 weeks)

Audience:

- eRA Commons system generated a list of individuals at domestic institutions who have logged into eRA Commons in the past 2 years & are identified in the system as having the following Scientific Roles:
  - Program Directors/Principal Investigators (all grant types R, P, K, T, F)
  - Trainees: Undergraduates, Graduate students & Postdocs supported on NRSA T, R25 or Institutional K awards
  - Scientists with other roles including Project Personnel

Goals of the Researcher Survey

- How did COVID-19 impact individual researchers at NIH funded institutions (e.g. limited access to research resources, including funding & material resources) ?

- Whether & how research productivity has been impacted including whether caretaking responsibilities impacted their productivity?

- Whether they are concerned about or have experienced negative impacts on their career trajectory, including tenure & as relevant, time to graduation or completion of postdoctoral training

- Extent to which their institution is providing effective support during this time

- Comfort and/or concerns about being in the physical workplace & impact on their mental health

Some changes in application deadlines due to COVID

- NIH accepted late applications through May 1 for deadlines between March 9 and May 1

- NIH accepted late applications for the May 25 due date for T32 & T35 institutional training grants through June 30

- Due to COVID, two cycle extension of eligibility announced for Parent K99 NOT-OD-20-158, NIDCR K99 NOT-DE-20-031 & Mosaic K99 NOT-GM-20-051

- Extensions in Early Stage Investigator (ESI) eligibility may be requested due to loss of research time due to COVID

Late application policy notices are listed on the Coronavirus Disease 2019 (COVID-19): Information for NIH Applicants and Recipients of NIH Funding website

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Early-Stage Investigators

Early-Stage Investigator (ESI): A PD/PI who has completed their terminal research degree or **end of post-graduate clinical training** (whichever date is later) within the **past 10 years &** who has not previously competed successfully as PD/PI for a substantial NIH independent research award.

Incorporation of the end of post-graduate clinical training rather than end of residency was implemented in NOT-OD-17-101 with a goal to enhance representation of Physicians in the R01eq funded workforce

List of NIH grants that a PD/PI can hold and still be considered an ESI:

- **Research Grants:** R00, R03, R15, R21, R25, R90, RL9, RL5, R34, R36, R41, UT1, R43, U43, R55, R56, SC2, SC3, X01

- **Training-Related and Mentored Career Awards:** "F", "K", L30, L32, L40, L50, L60, T32, T34, T35, T90, D43

- **Instrumentation, Construction, Education, Health Disparity Endowment Grants, or Meeting Awards**: G07, G08, G11, G13, G20, R13, S10, S15, S21, S22

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Determination of ESI Status

- All PD/PIs must have an **eRA Commons account** at the time of application.
- Prior to application submission, PD/PIs are encouraged to verify and/or enter the date of their *terminal research degree* or *end date of post-graduate clinical training* in their eRA Commons Profile.
- NIH systems will automatically calculate whether investigator is ESI.
- The status is shown in the investigator's eRA Commons profile.
- Investigators should make sure their **status is correctly marked** in their profile.
- If your status is incorrect, please contact the NIH eRA Service Desk.

Extension of ESI Status

- Some researchers have **lapses in their research or research training**, or experience **periods of less than full-time effort**.

- NIH considers ESI extension requests for: Medical concerns, disability, family care responsibilities, extended periods of clinical training, natural disasters **including COVID 19** & active duty military service.

- Determined on a case by case basis at the sole discretion of NIH.

- Prior to extension requests, PD/PIs should verify and/or enter the date of their terminal research degree or the end date of post-graduate clinical training in eRA Commons.

- A recent NOT indicates automatic one-year ESI extension for childbirth (during the initial ESI period: NOT-OD-18-235).

- New Portal: https://era.nih.gov/erahelp/ESIE_ext/Default.htm#cshid=4

ESI extension request portal

Follow these steps to access the ESI Status Extension request link:

1. Log in to eRA Commons and select the *Personal Profile* tab to open your profile
2. Click on the ▾ *Edit* option for the *Education* section

3. Click on the ▸ Submit ESI Status Extension Request button
4. The ▸ ESI Status Request form page will open

- Log in to eRA Commons
- Select Personal Profile tab
- Click on the Edit option for the 'Education' Section
- Click on the 'Submit Extension Request' button
- The ESI Status Request form will open

Salaries & Stipends

- If unable to work on grant or training/fellowship activities, salaries & stipends may still be charged to NIH grants

  - Ensure that your organization's policy allows such charges from federal & non-federal funds

- Prior approval is not required to divert faculty from research to clinical work related to COVID-19 until the end of the public health emergency period.

- NIH is allowing:

  - Pre-award costs to be incurred
  - Extensions of post-award reporting
  - Prior approval requirement waivers
  - Numerous flexibilities regarding expenditures of funds

Learn more: NOT-OD-20-086

FAQs: grants.nih.gov/faqs#/covid-19.htm

Advice for Applicants & Recipients

- For general questions regarding COVID-19 flexibilities related to grants policy, contact NIH's Office of Extramural Research at grantspolicy@nih.gov

- For general questions re training, fellowship or career development policies including COVID-19 contact the Research Training Mailbox: NIHTrain@mail.nih.gov

- For questions specific to your NIH application or award, contact the relevant grants management or program staff at the NIH funding institute or center

CORONAVIRUS DISEASE 2019 (COVID-19)
Information for Applicants and Recipients

FAQs frequently updated. Check back often!

https://grants.nih.gov/policy/natural-disasters/corona-virus.htm

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THANK YOU! QUESTIONS?

Keep the Joy in Research
Writing a Grant is Fun (really!)
Trainees and Mentees Provide a
Scientific Family Forever

Websites: https://grants.nih.gov/grants/oer.htm

Contact us: NIHTrain@mail.nih.gov

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Surveys on the Impact of COVID-19 on Extramural Researchers & Extramural Institutions

In October, NIH is fielding two surveys to understand the impact of COVID-19 on extramural research: one survey to gain the perspective of a single leader at extramural institutions and one survey to gain the perspective of researchers themselves.

What topics are covered in the surveys?

Institution Survey – This survey aims to understand overall challenges faced by institutions during the COVID-19 pandemic. Topics covered include: whether and to what extent research activities have been put on hold; what specific research activities have been impacted; the expected financial impacts to the institution; current impacts on the research workforce, including budget cuts; how institutions are prioritizing operations to restore research activities; the impact on tenure-track researchers; and re-opening policies.

Researcher Survey – This survey aims to understand how COVID-19 has impacted individual researchers at NIH funded institutions. Topics covered include: whether researchers have been limited in their access to research resources, including funding and material resources; whether and how their research productivity has been impacted; whether they have caretaking responsibilities and how it impacts their productivity; whether they are concerned about or have experienced negative impacts on their career trajectory, including tenure; the extent to which their institution is providing effective support during this time; their comfort and/or concerns about being in the physical workplace; and the impact on their mental health.

How were the questionnaires developed?

The questionnaires were developed by an appointed committee (Coronavirus Survey Development Group) and spearheaded by the Chief Officer of Scientific Workforce Diversity (COSWD). Cognitive testing was conducted on both survey questionnaires to capture feedback on the questions, followed by pilot testing of the web surveys to capture feedback on the user experience of the web survey as a whole.

How were participants selected?

Institution Survey – A single research leader (e.g. Vice President for Research, Vice Dean for Research, Chief Medical Officer) was identified from each of the following: the top-funded 500 domestic institutions based on FY2019 NIH awards, including all schools in the Association of American Medical Colleges (AAMC), and minority serving institutions that received grant awards in FY2019.

Researcher Survey – The eRA Commons system was used to generate a list that includes individuals at domestic institutions who meet the following criteria: have logged into eRA Commons in the past 2 years *and* are identified in the system as having a Scientific Role (including: PIs, Trainees, Sponsors, Undergraduate students, Graduate students, Postdocs, Scientists, and Project Personnel).

How and for how long are the surveys being administered?

The surveys are being launched in the first two weeks of October and will field for up to three weeks. They are being fielded through a third-party vendor and on the Qualtrics survey platform. The surveys each take about 20 minutes to complete. Responses are confidential and anonymous, and all questions are optional.

How and when will results be shared?

NIH is creating a plan for how and when to share results and will update the community on the plan.

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