

NCI Analyses: Productivity and Funding Trends

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Questions to Answer for NCI

Productivity

- What are the productivity trends for NCI-funded investigators?

Early Stage Investigators

- How is funding changing over time for early-, mid-, and late-career NCI investigators?

Newly Funded and Competing Renewal R01s

- To what degree is NCI R01 funding turning over?

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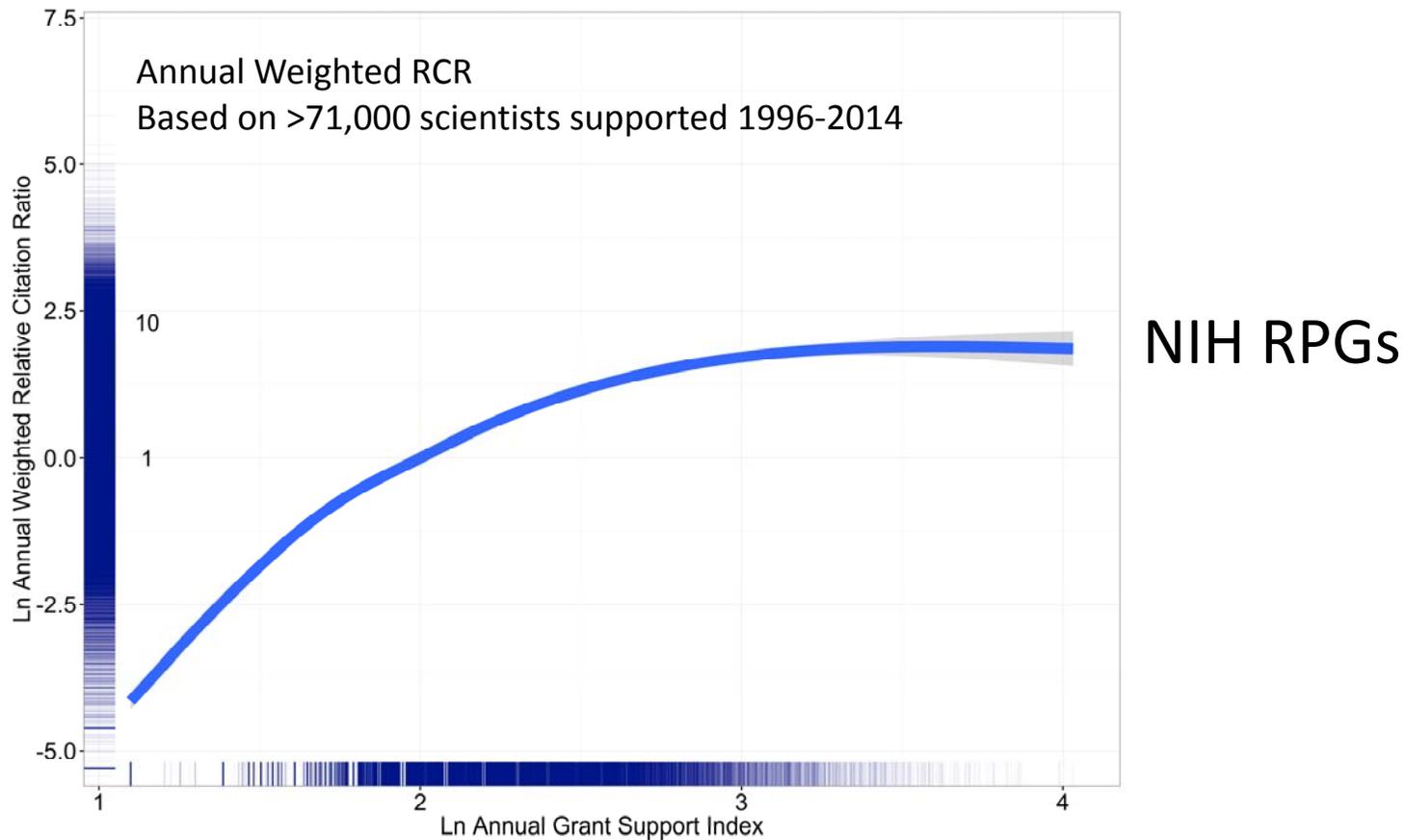
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Assessing Research Productivity

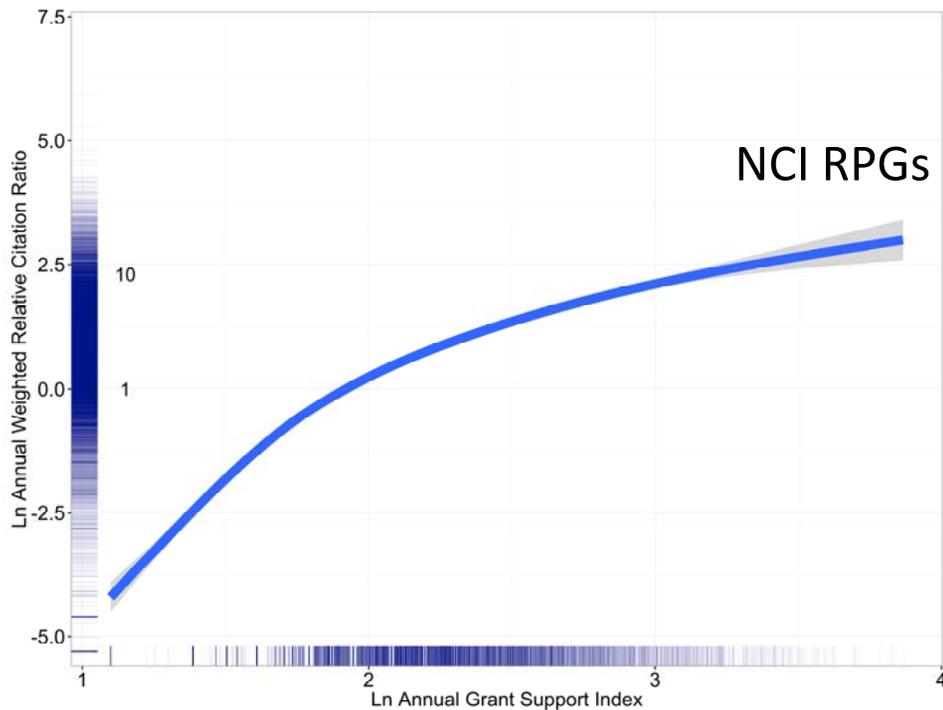
- Over the last several years, the NIH (OD and ICs) has increasingly become interested in assessing research productivity using bibliometrics
 - NIH and NIGMS have reported diminishing return on investment with increased direct costs
- We wanted to assess productivity of NCI-funded researchers using bibliometrics
 - We learned how the NIH and other ICs were collecting data, performing their analyses, and using available analytical tools
- We evaluated bibliometric productivity of NCI R01 funded researchers, recognizing that
 - These measures have caveats
 - Linking a publication to a grant (and subsequently a PI) has a number of challenges
 - These measures do not capture the impact of the full breadth of NCI-funded research

NIH-Wide Data: Incremental Research Output According to Extent of Grant Support

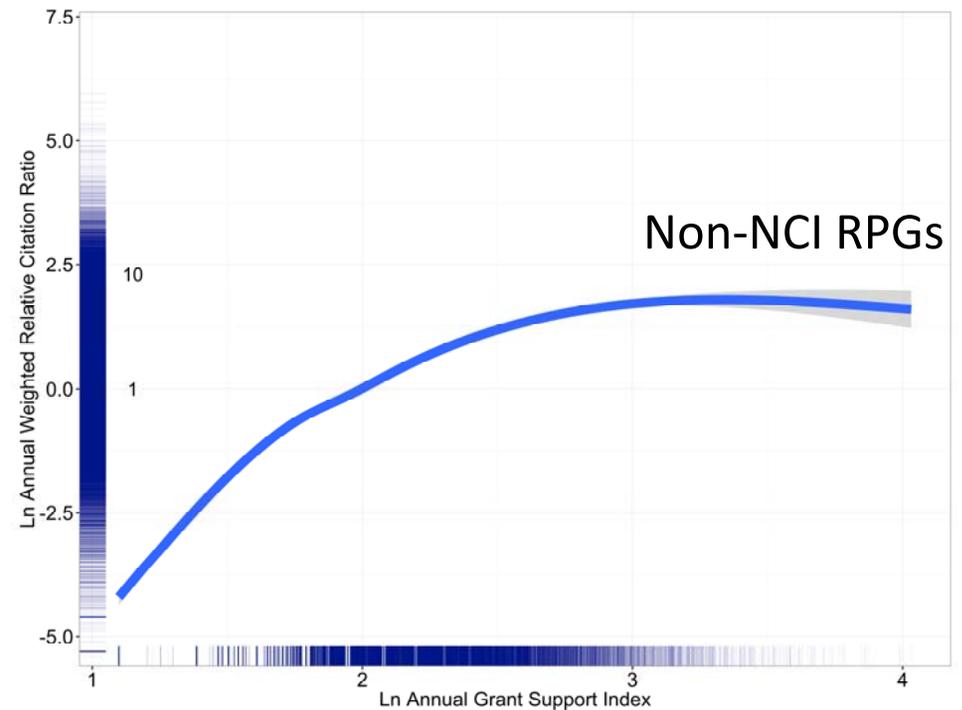


Lauer *et al.* 2017 bioRxiv 142554, data from: <http://biorxiv.org/content/early/2017/05/29/142554>

At High GSI, NCI Productivity Continues to Increase

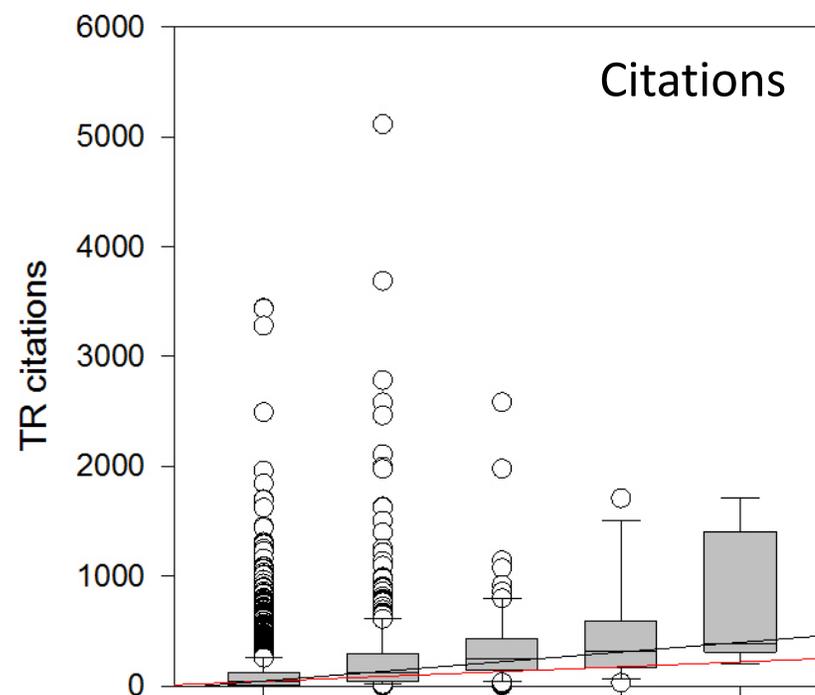
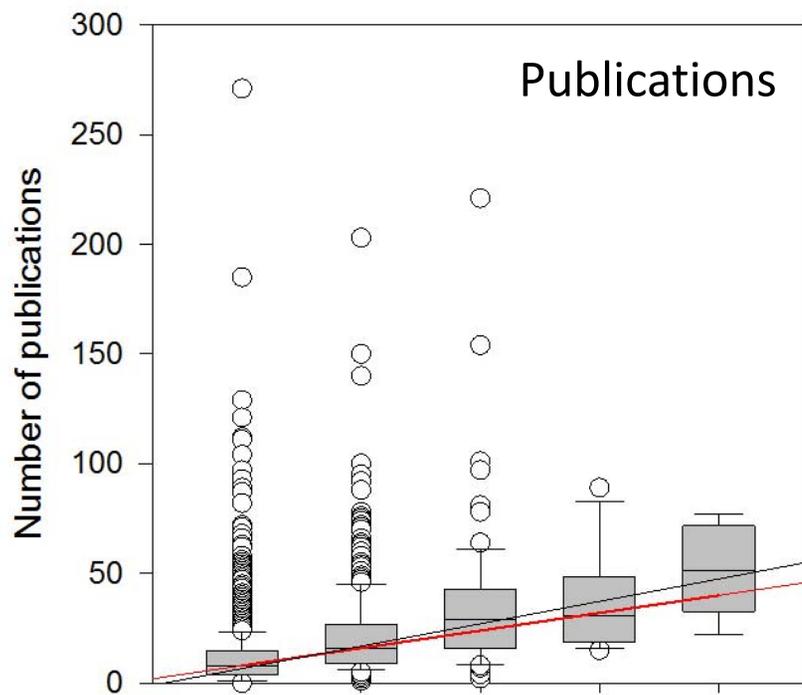


Annual Weighted RCR
Based on ~14,000 scientists supported 1996-2014



Annual Weighted RCR
Based on ~57,000 scientists supported 1996-2014

Publications and Citations Increase with Number of NCI R01s per Investigator*



# R01s per Investigator	1	2	3	4	5
# PIs	2329	401	76	18	6

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- Black line is linear regression (trend line) through the medians
- Red line is line of proportionality

*Funded in FY2011

Publications and Citations Increase with Number of NCI R01s per Investigator

- The trend lines suggest greater productivity than expected from investigators with more than one R01
- Very few investigators (<1%) hold ≥ 4 R01s
 - Data are similar for the last 5 years

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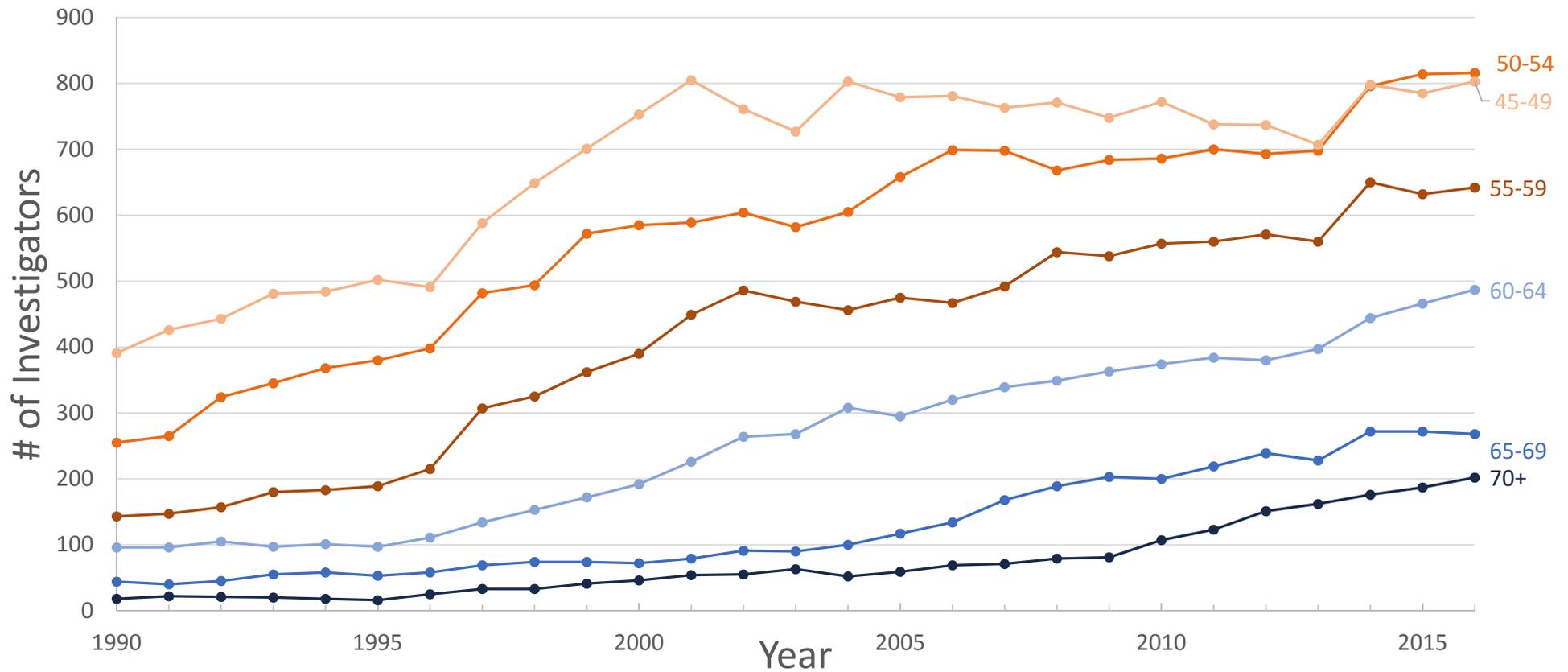
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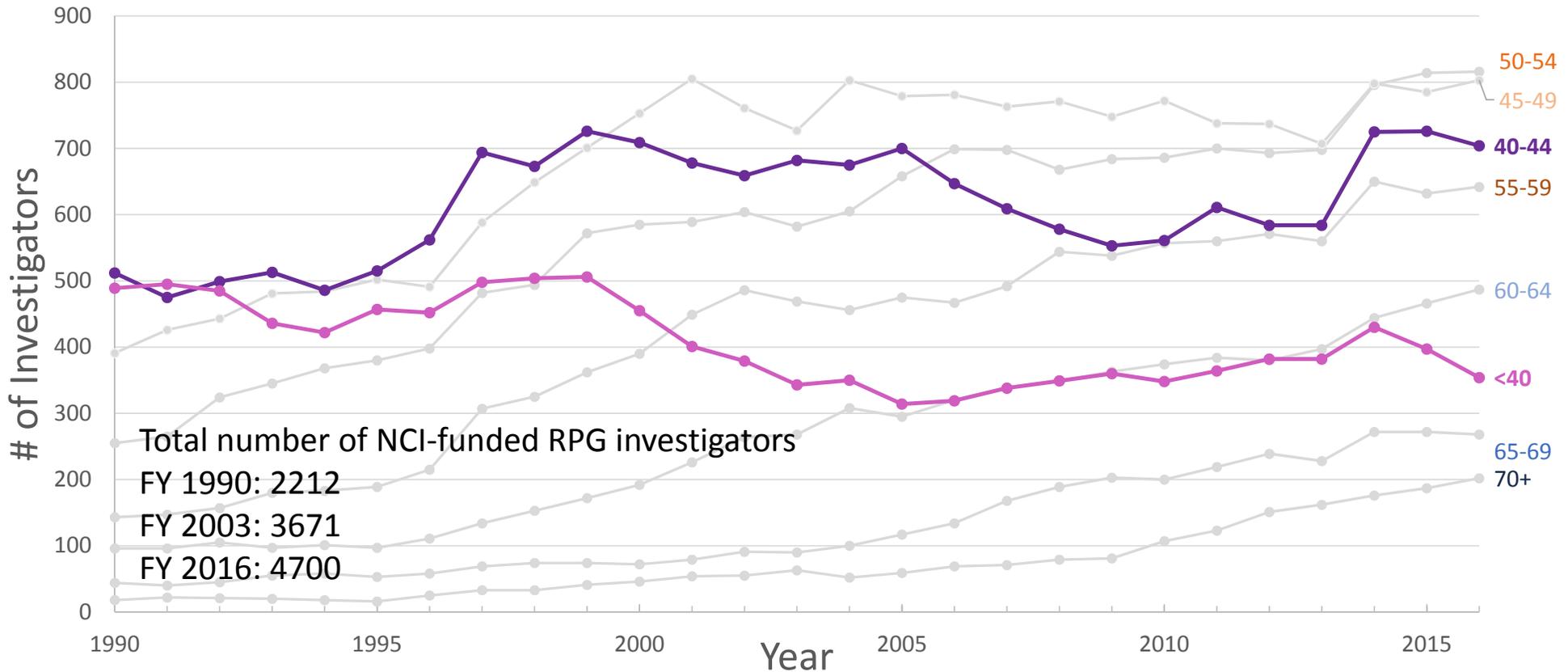
Funding Trends Over Time by Age: NCI RPG Investigators



Data from OER SARB

Funding Trends Over Time by Age: NCI RPG Investigators

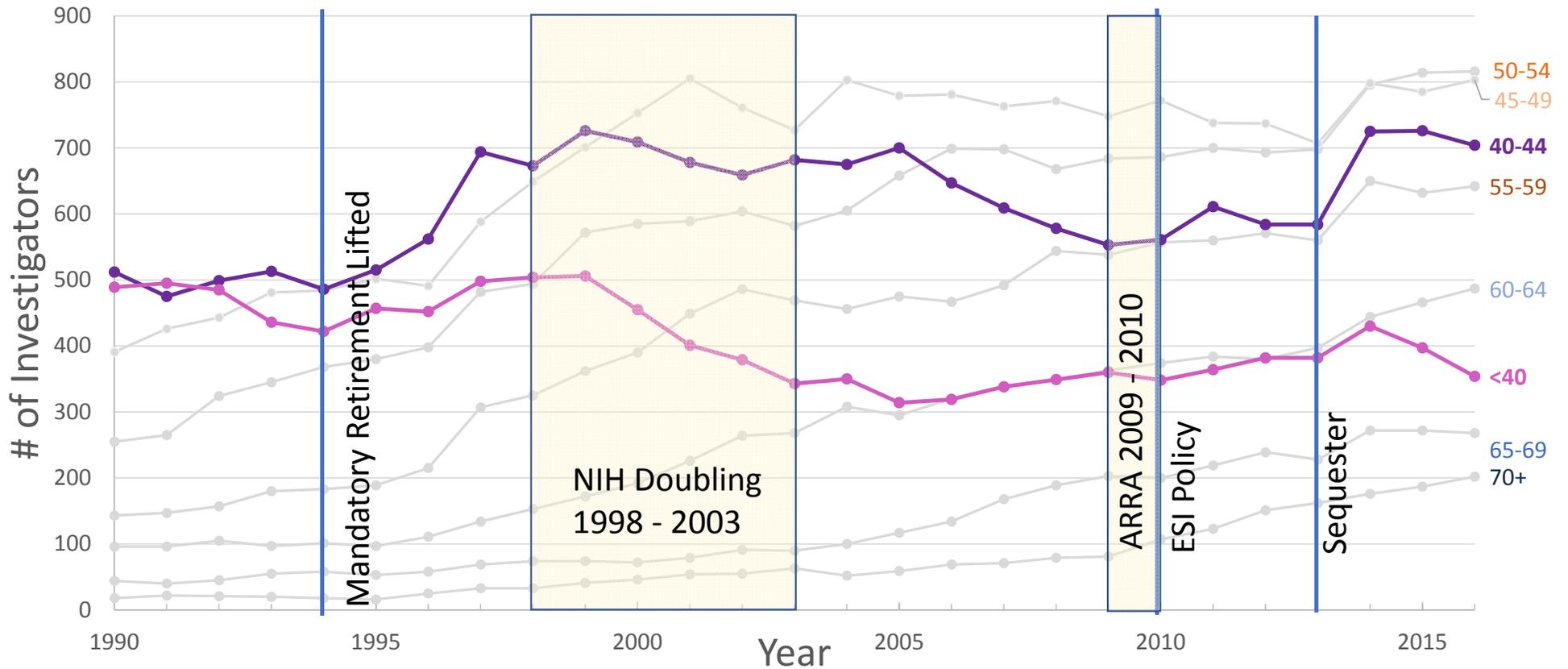
All age groups are increasing over this period except for under 40 group



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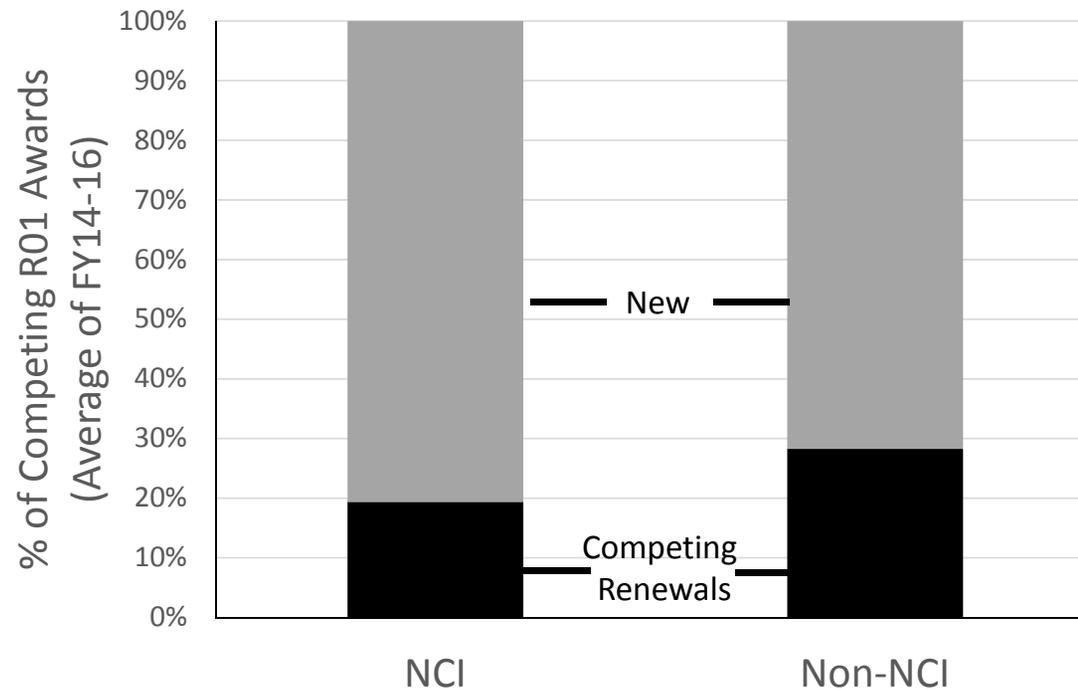
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Turnover of NCI R01s is greater than non-NCI R01s



- Percent of competing R01 awards that are competing renewals is lower for NCI as compared to non-NCI
- Additionally, success rate of competing renewals at NCI is lower than non-NCI (25% vs. 36% in FY 2014)

Data Source: <https://report.nih.gov/fundingfacts/fundingfacts.aspx>

Summary

- Productivity of NCI investigators increases with number of RPGs
 - As assessed by bibliometric analyses
 - A broader set of measures are necessary to truly assess productivity of the breadth of research being performed by NCI-funded investigators
- The number of NCI-funded investigators under 40 declined from 1990 to 2016
- Turnover of NCI R01s is greater than non-NCI R01s

Questions?

CRS, NCI Senior Analysts

- Dr. Melissa Antman
- Dr. Grace Liou

OER Statistical Analysis and Reporting Branch

- Provided NIH age related data

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