Survey of Pre-Doctoral Research Experiences in Economics

Zong Huang, Stanford University
Pauline Liang, Stanford GSB
Dominic Russel, NYU Stern

Motivation

- **Pre-doc**: Post-undergraduate (but pre-doctoral) research assistant (RA) position targeted towards college seniors/recent graduates interested in pursuing a PhD

- Anecdotally, popularity of pre-docs have exploded in past decade, particularly for academic pre-docs. In 2013-14, no “star” PhD graduates had academic RA experience; by 2017-18, one fifth did (Bryan 2019)

- Information on pre-docs often passed through informal networks

Survey goals

1. Make more transparent and widely available information on:
    - How to apply for a pre-doc
    - What a pre-doc entails
    - Differences & similarities between positions

2. Provide descriptives on *who* are getting pre-doc positions

Outline

1. Survey distribution & sample
2. Demographics
3. Skills & experiences prior to position
4. Hiring process
5. Day-to-day life
6. Academic vs non-academic positions
7. Advice for future applicants

Full results are available in our data appendix

Survey Distribution & Sample

Directly contacted current pre-docs at major institutions and advertised survey on #EconTwitter

Criterion	N
Clicked on survey distribution link	410
Consented and finished survey	258
Valid e-mail	254
Full-time position	247
Institution in U.S.	226
Position end date $\geq$ 2018	222
Position started $\leq$ March 2020	203

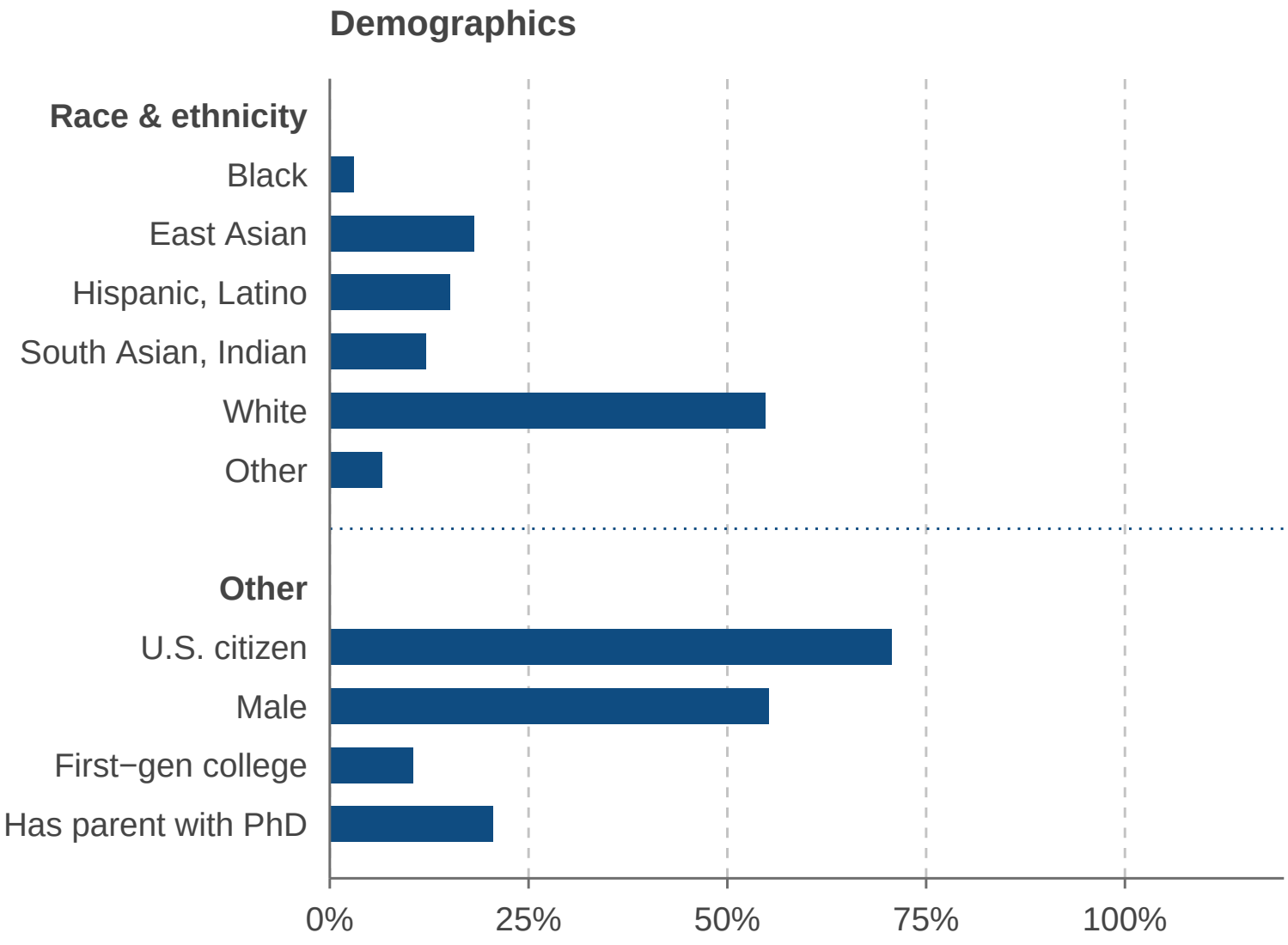
- **Final sample:** 203 recent full-time pre-docs at 29 U.S. institutions
- Focused analysis on U.S. institutions due to limited number of non-U.S. responses

Sample non-representative but covers 71% of institutions listed on NBER RA job listings and @EconRA Twitter

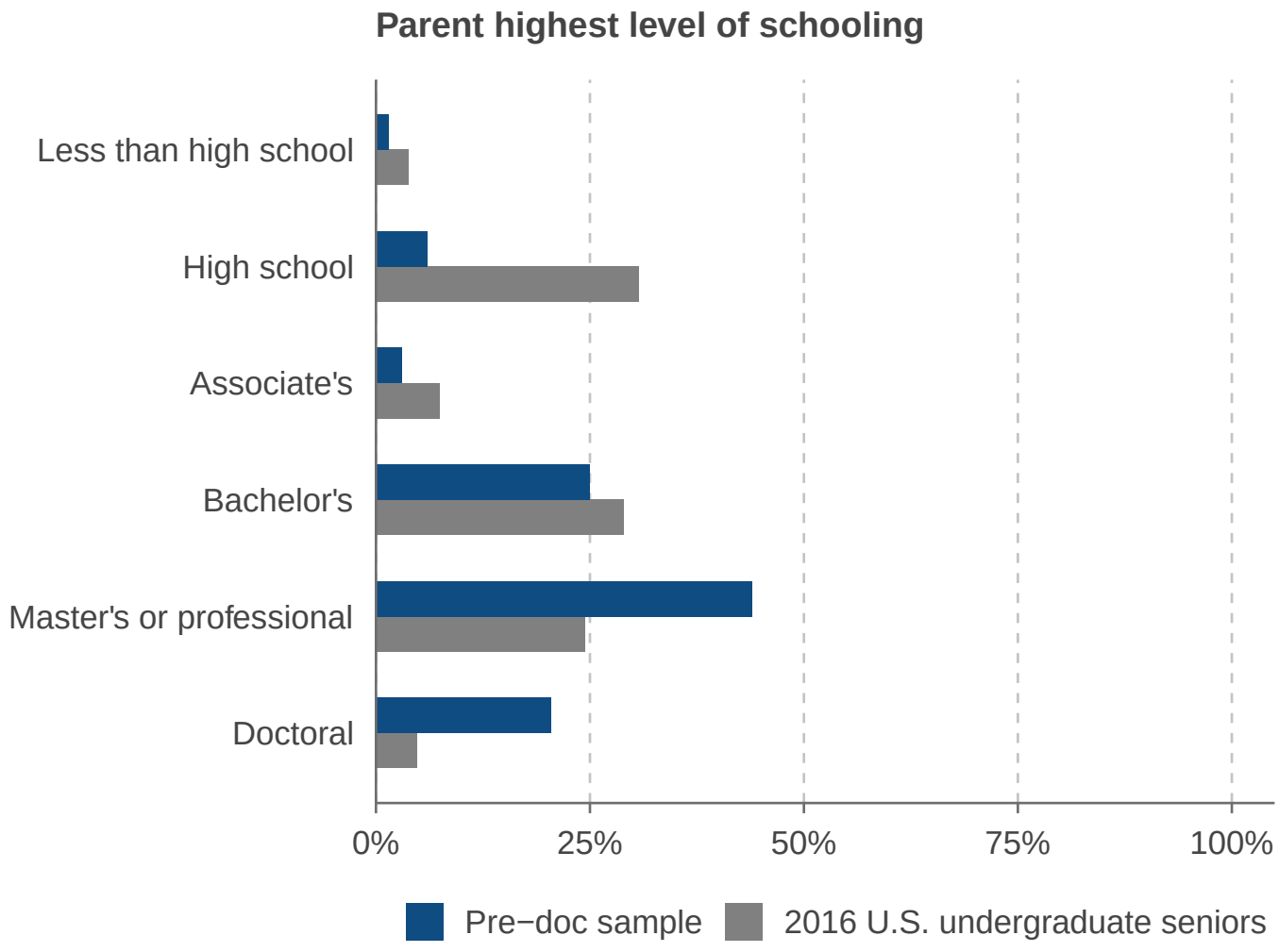
Academic		Non-academic	
Institution	Count	Institution	Count
Stanford	27	Fed system	26
Harvard	21	RAND	17
UChicago	20	IMF	11
Yale	15	CFPB	4
Princeton	11	Microsoft Research	3
Northwestern	9	Other non-academic	4
MIT	6		
NYU	6		
Columbia	5		
JPAL / IPA	4		
NBER	4		
Other academic	10		
Total	138		65

Demographics

Pre-docs are majority white, U.S. citizens, male, and continuing-generation college graduates

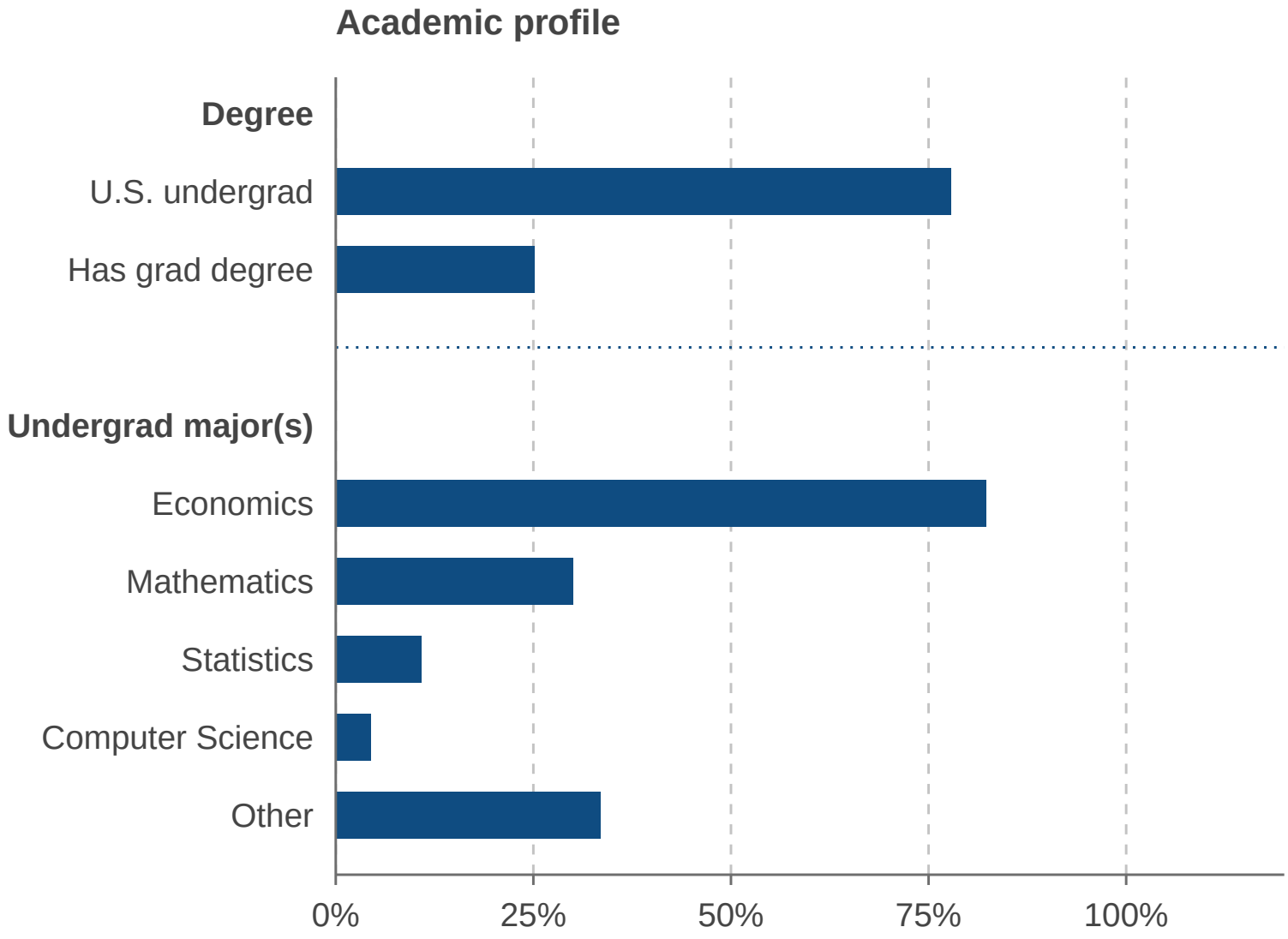


Parents of pre-docs have higher levels of education than parents of average U.S. undergraduate

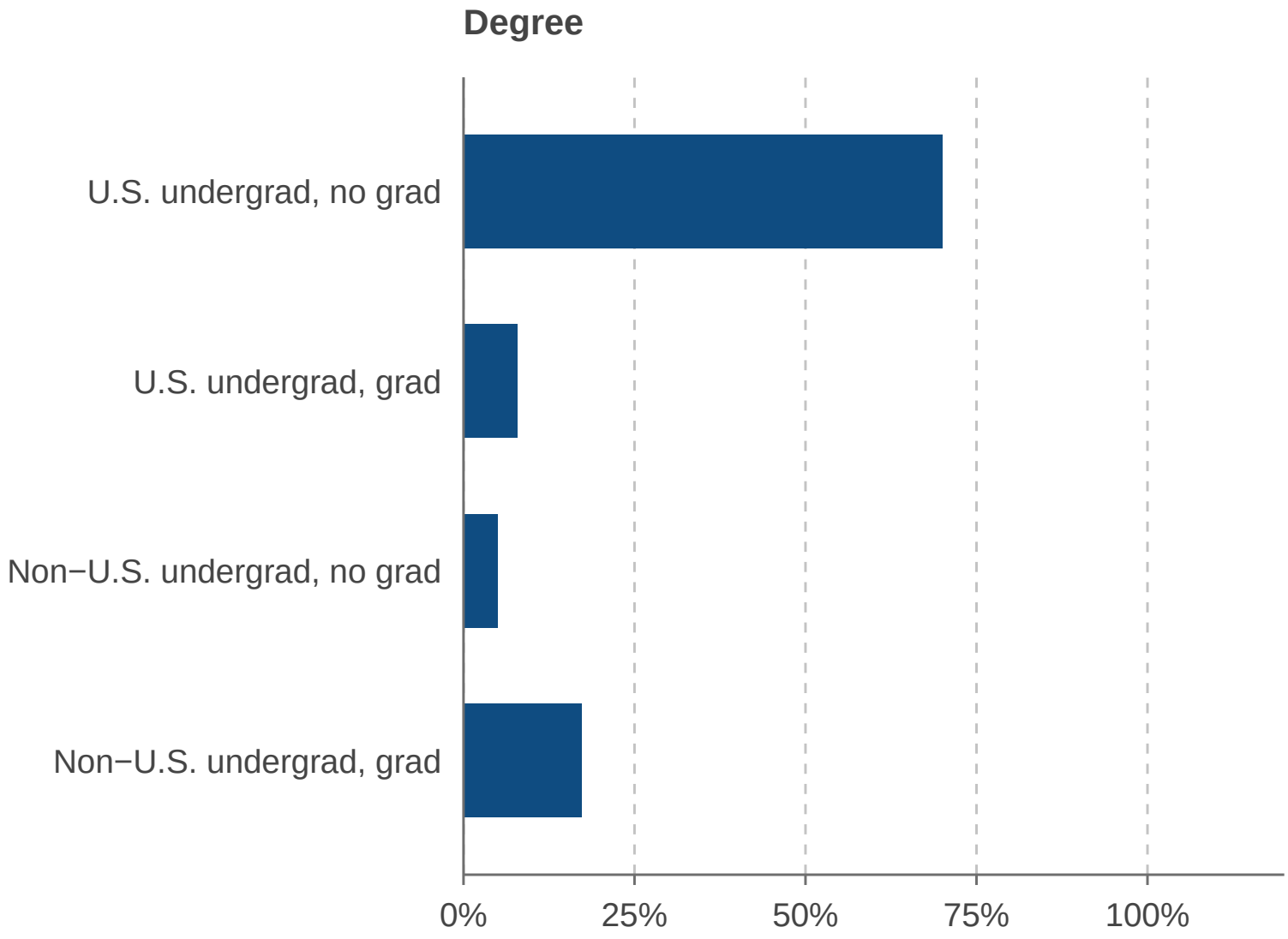


Source: 2016/17 Baccalaureate and Beyond Longitudinal Study.

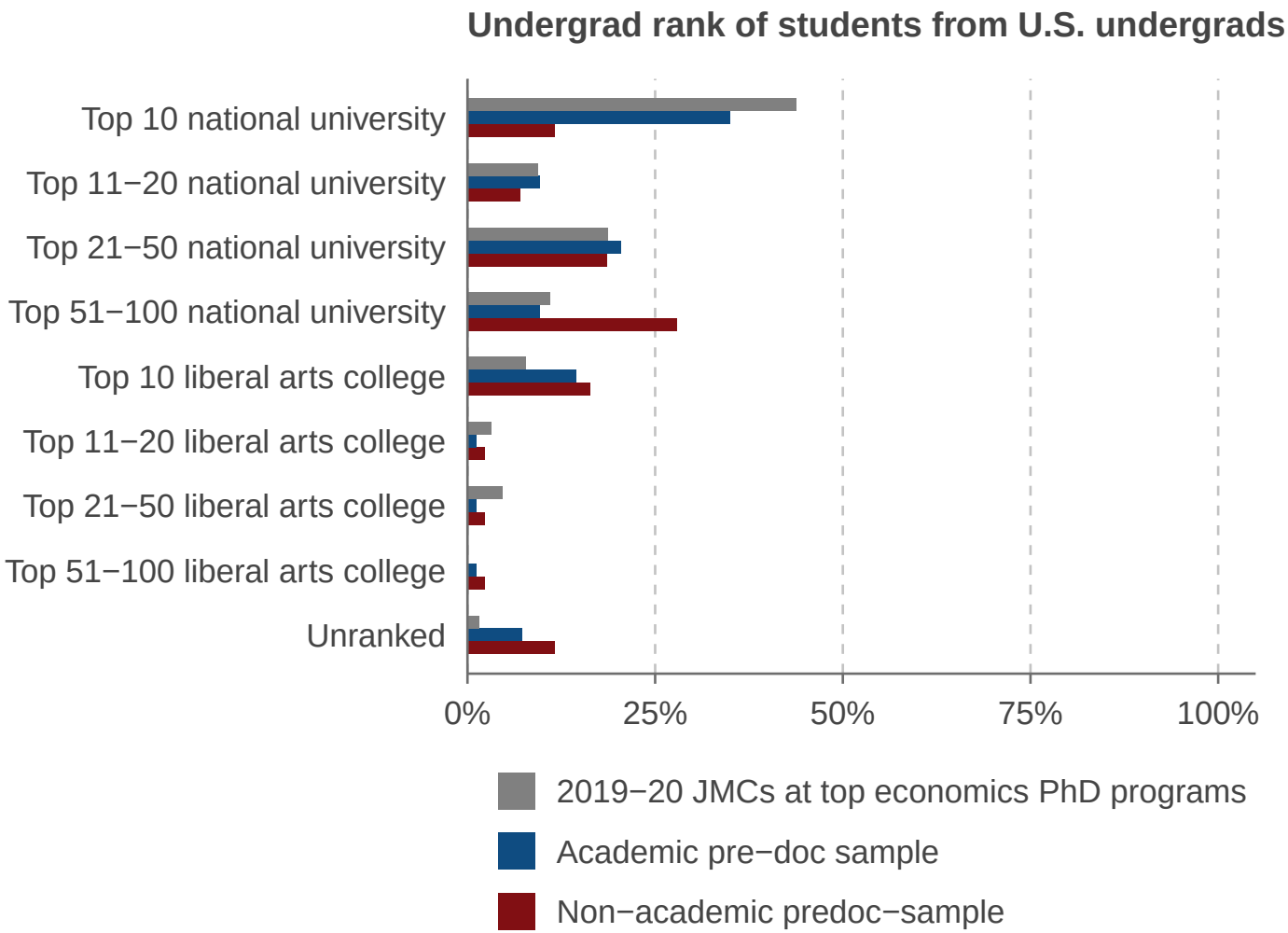
Large majority of pre-docs hold undergraduate degree from U.S. college or university and majored in economics



Pre-docs with non-U.S. undergraduate degree usually have a graduate degree (and vice-versa)



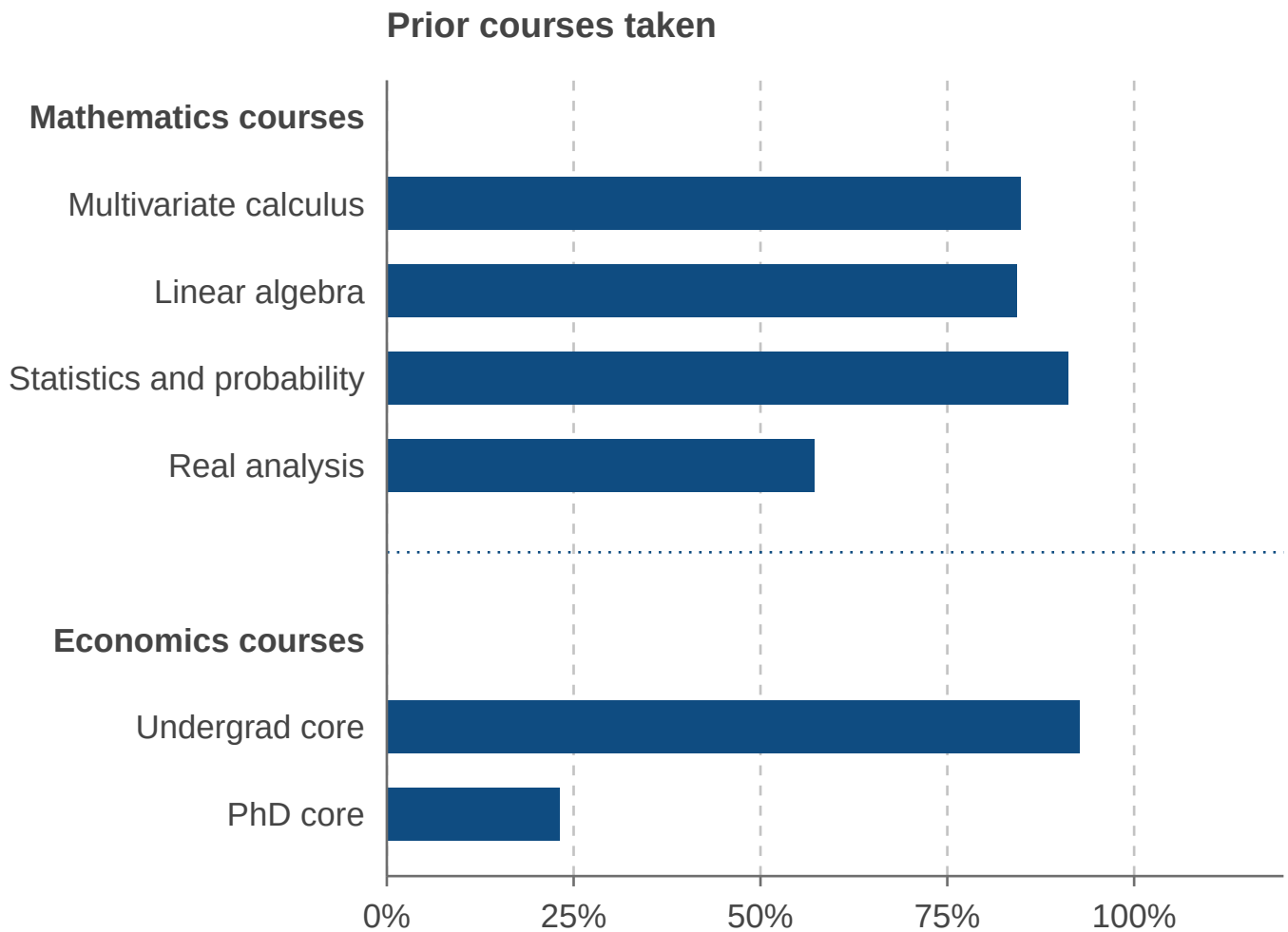
Academic pre-docs went to similarly ranked U.S. colleges or universities as recent job market candidates from top PhDs



Includes U.S. undergraduates without graduate degrees prior to their PhD program or pre-doc. Economics PhD programs include MIT, Harvard, Stanford, Princeton, Yale, UC Berkeley, and UChicago. Source: 2020 U.S. News Best Colleges.

Skills & Experiences Prior to Position

Common for pre-docs to have taken advanced economics and math courses prior to position

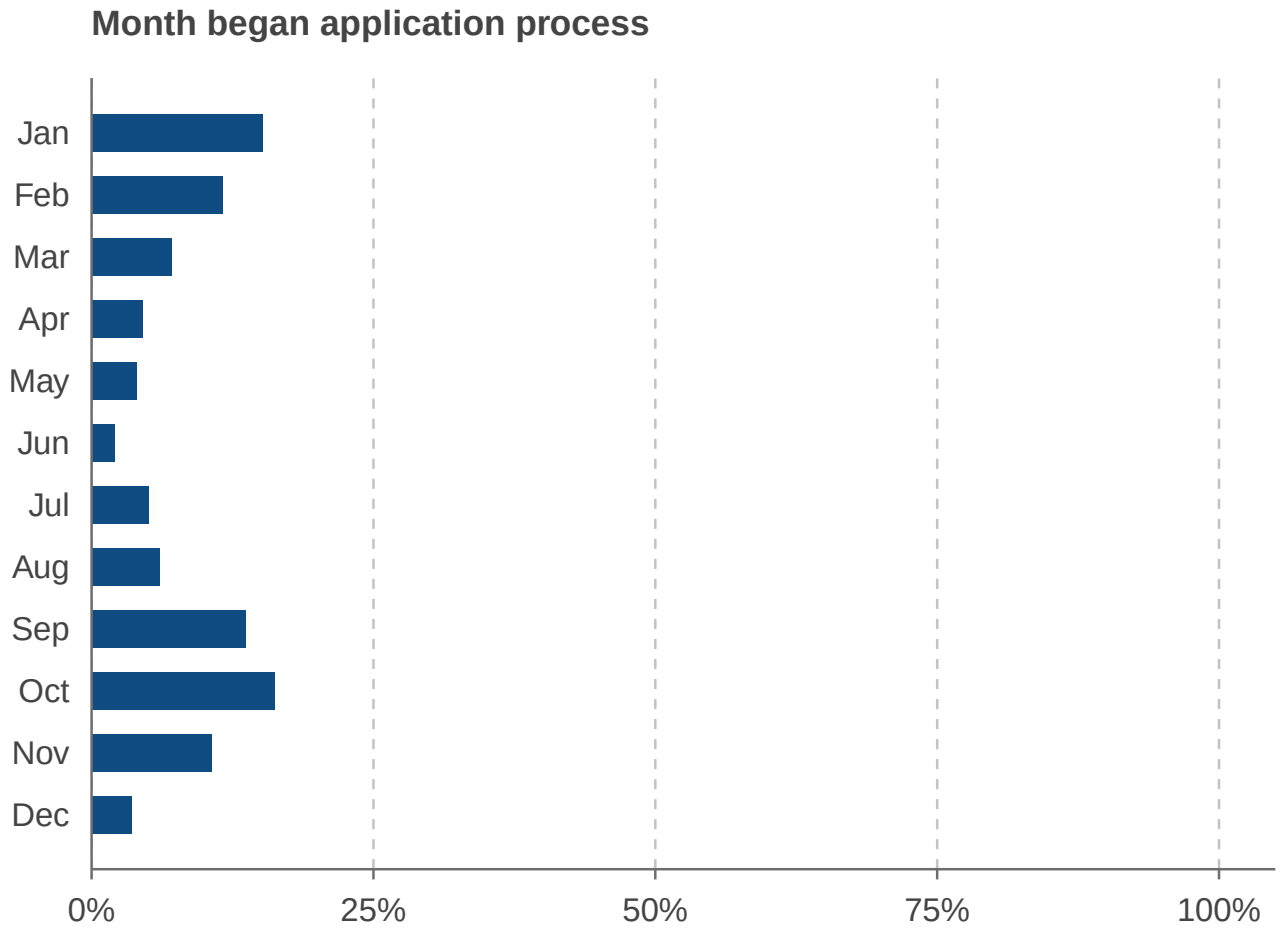


Undergraduate core includes intermediate microeconomics, intermediate macroeconomics, and econometrics. Taking undergraduate core or PhD core refers to taking any course included in the core.

Pre-docs have prior research and programming experience; many have prior full-time experience

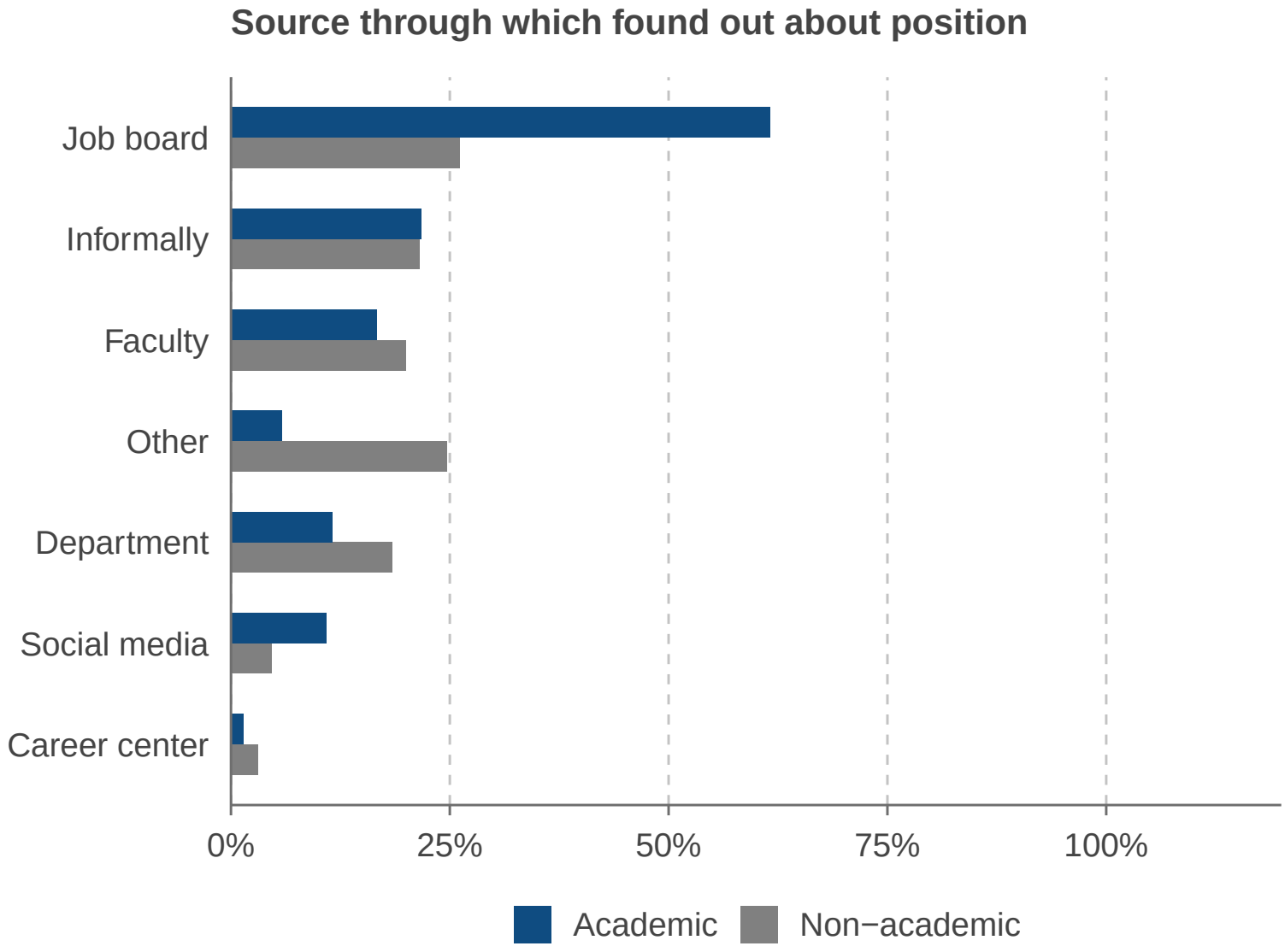
Hiring Process

Late fall/winter most common time for recruitment, though hiring occurs year-round

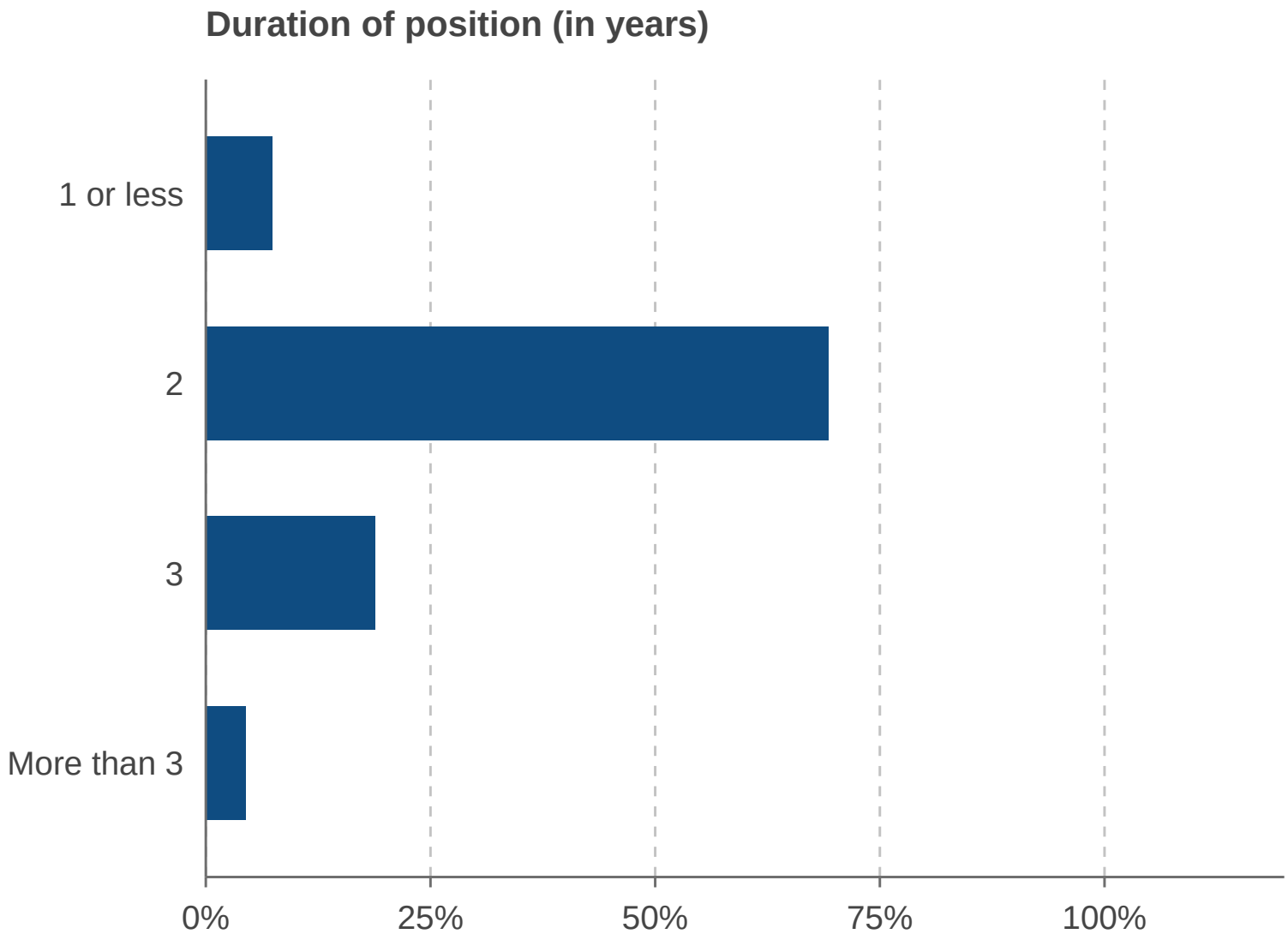


- Pre-docs generally received their offer for position within two months of starting application process

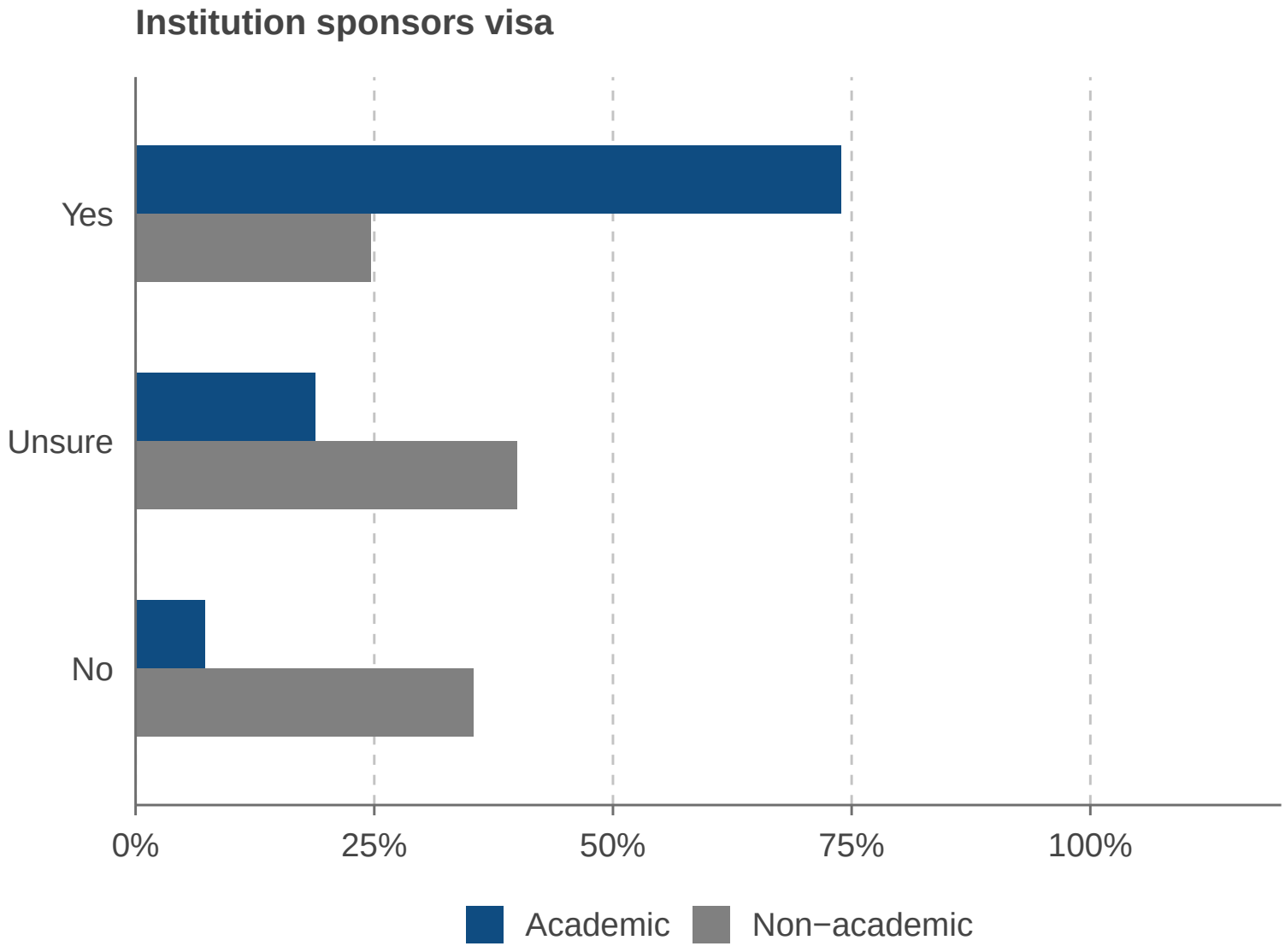
Recruitment centralized around RA job listings (e.g., NBER) for academic pre-docs; heterogeneous for non-academic



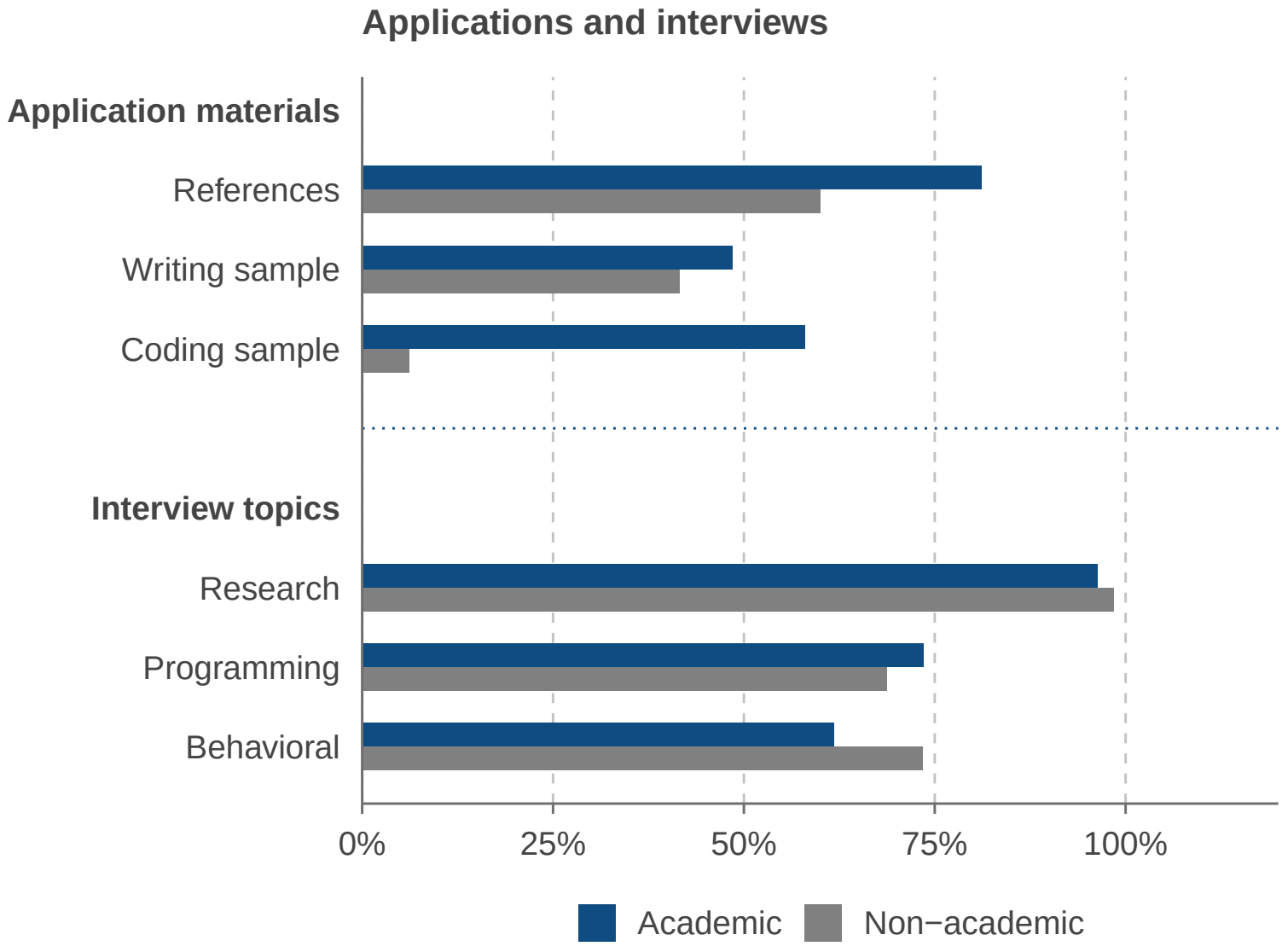
Pre-docs usually last two years



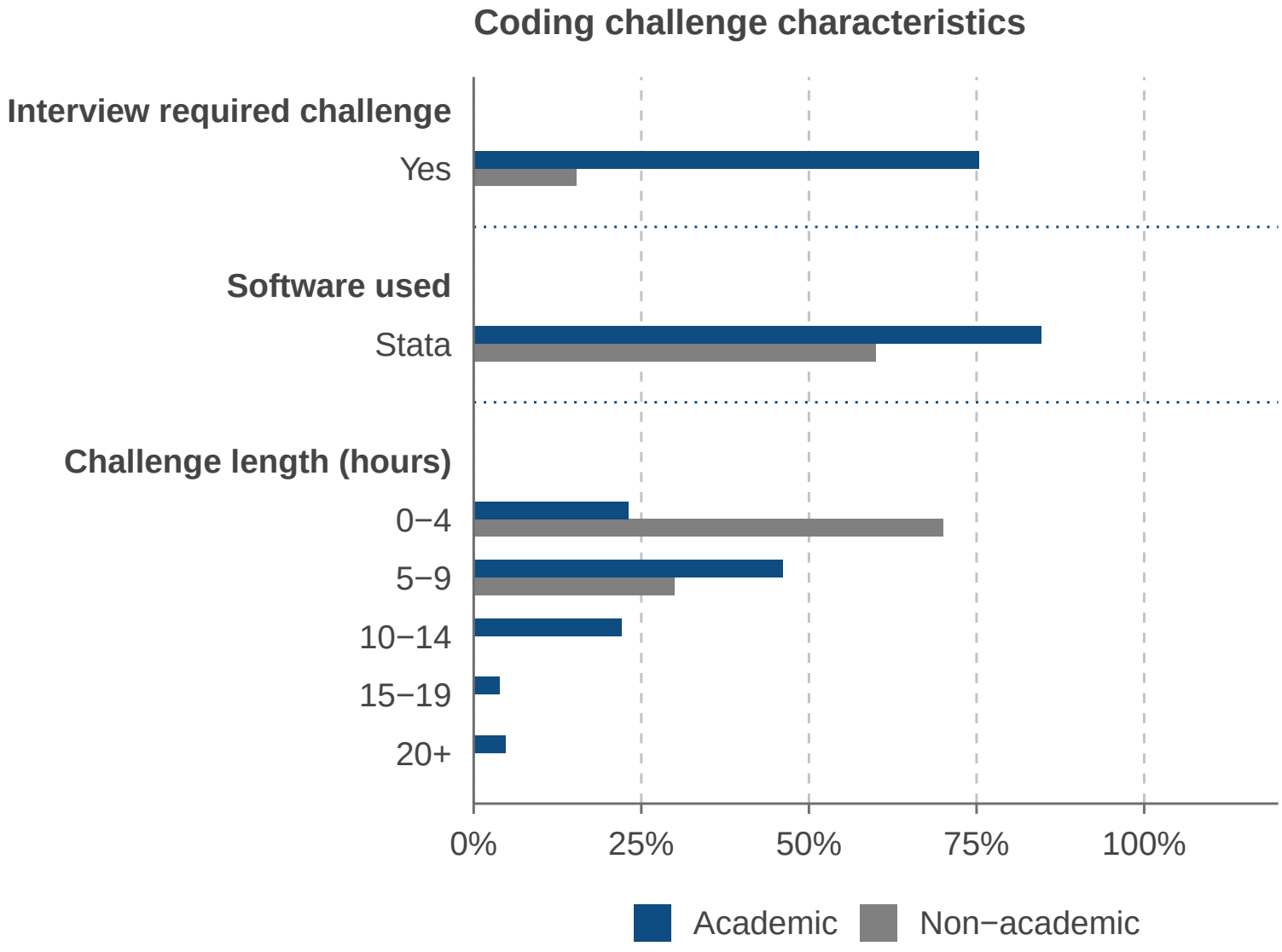
Visa support more common for academic positions than non-academic



References and writing/coding samples often requested; interviews focused on research and programming skills

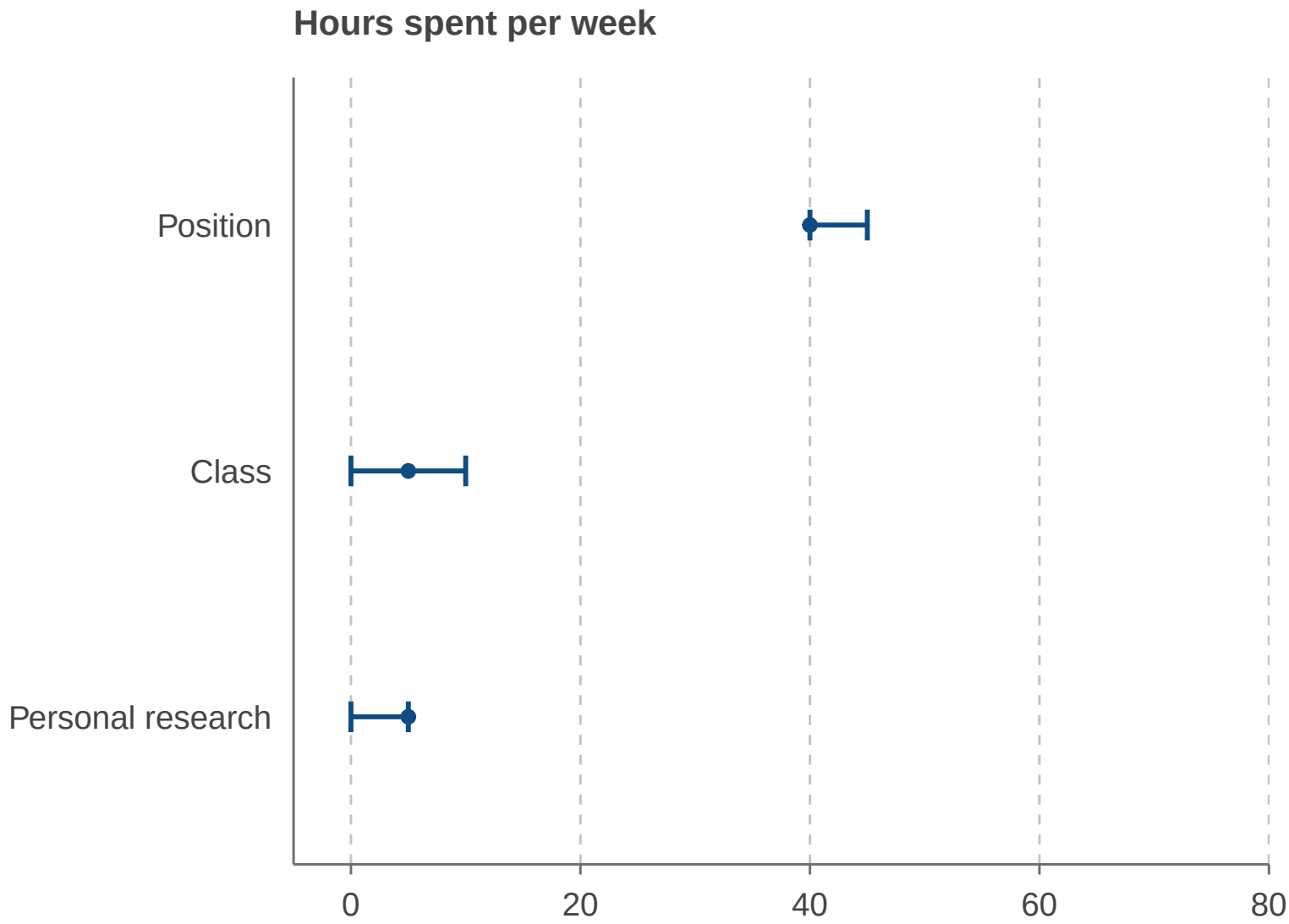


Coding challenges typical for academic pre-docs and primarily in Stata



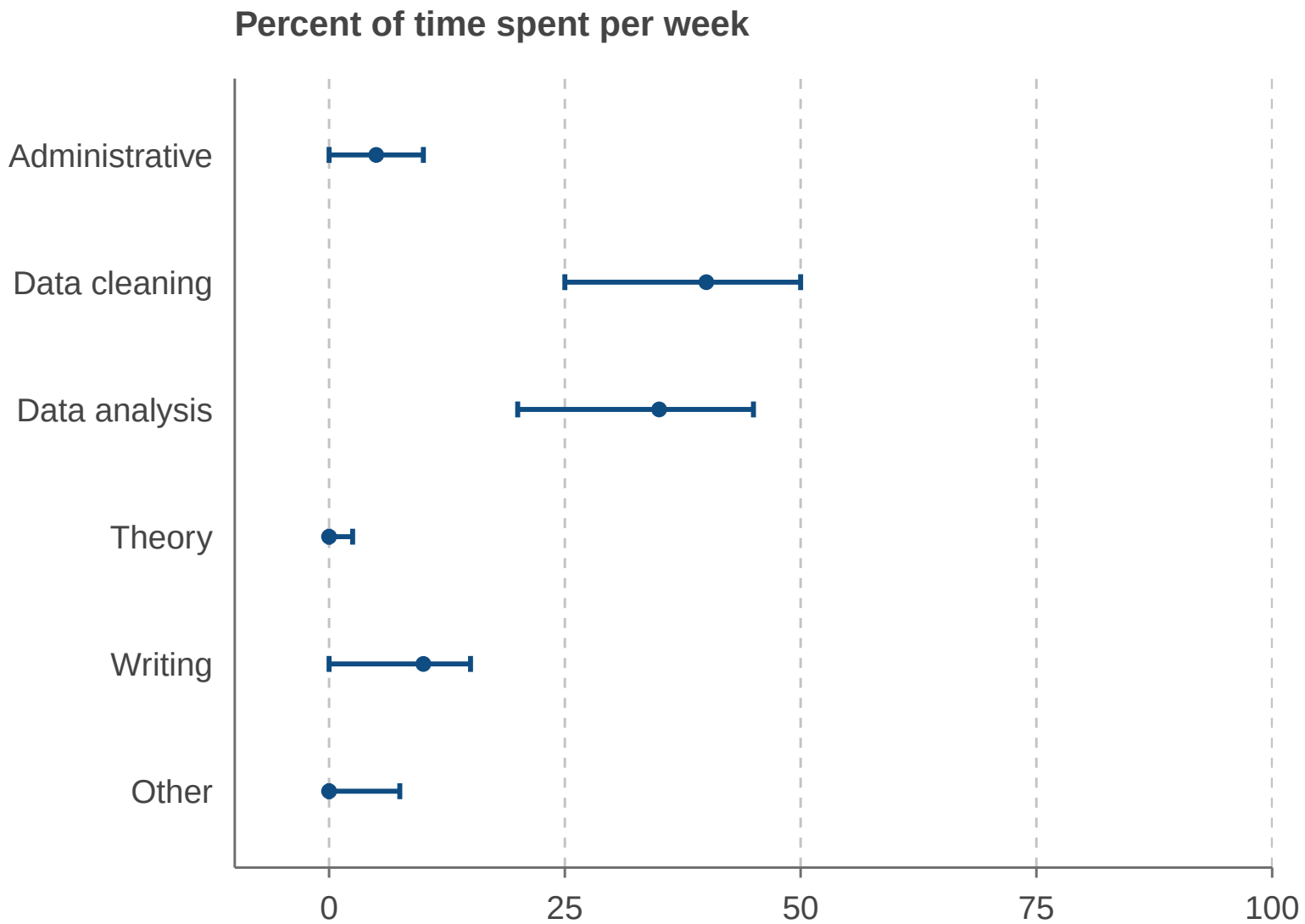
Day-to-Day Life

Self-reported median working hours: 40 hours per week



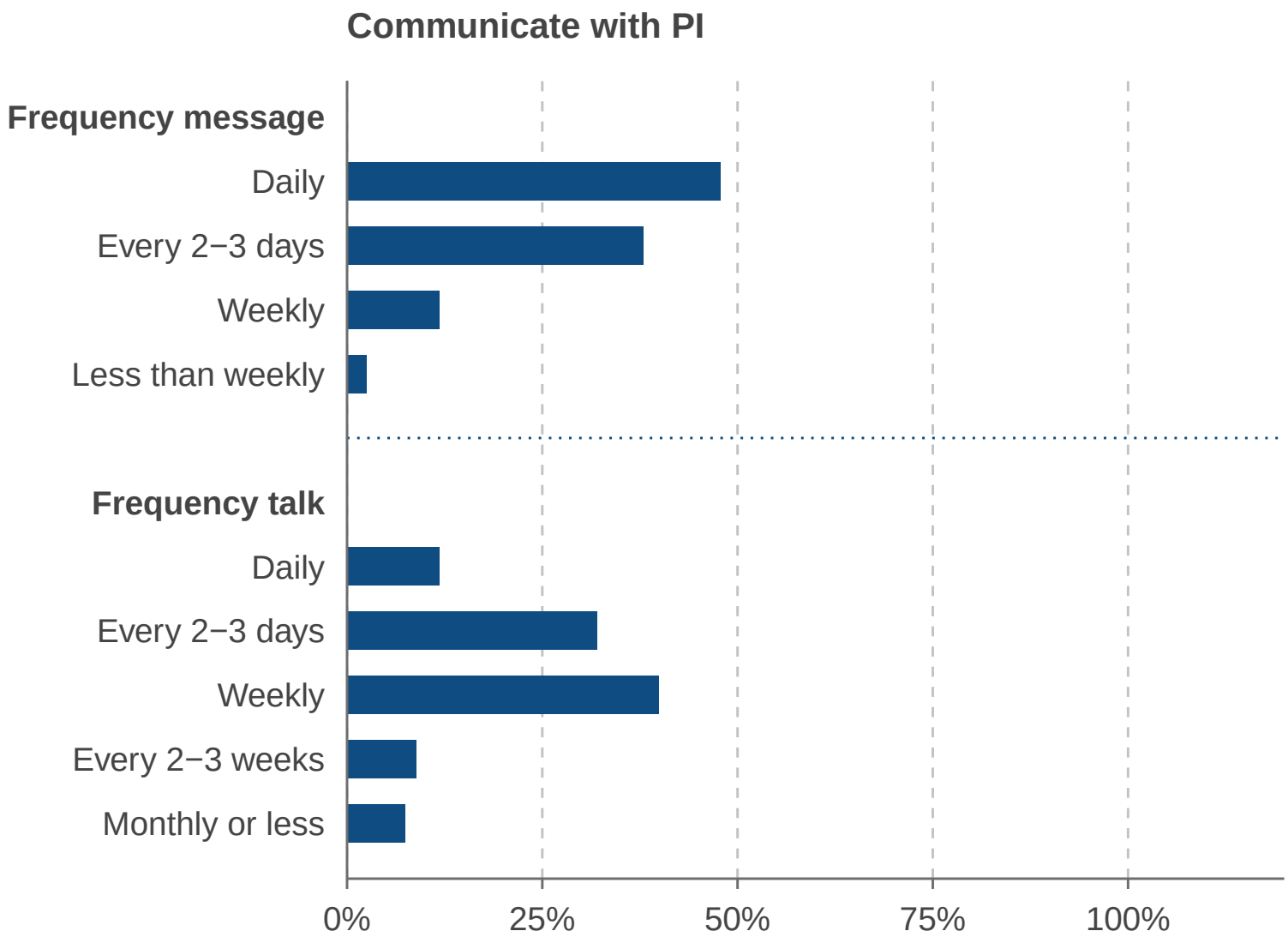
Error bars present the 25th, 50th, and 75th percentile.

Pre-docs spend most of their time on data work

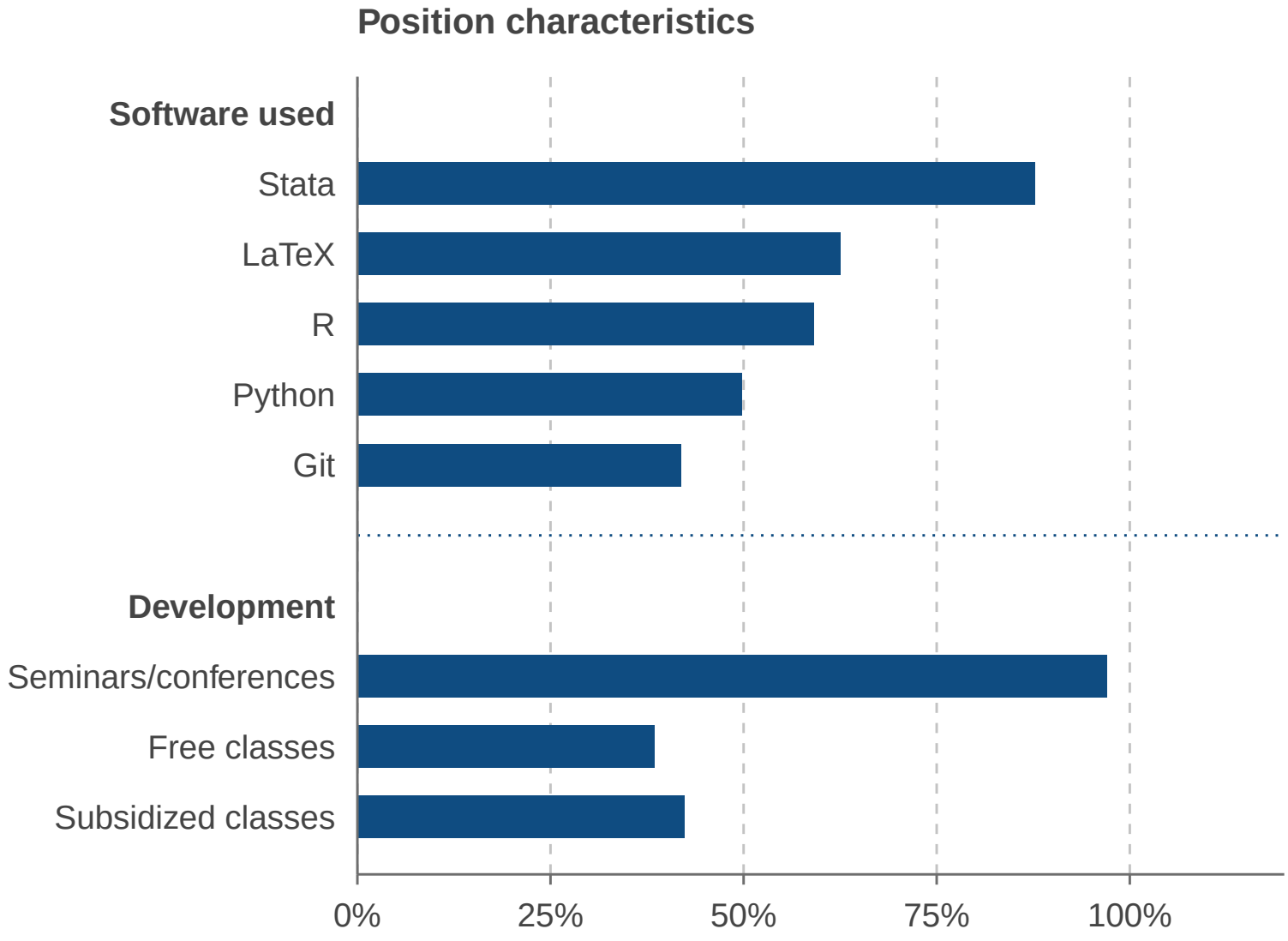


Error bars present the 25th, 50th, and 75th percentile.

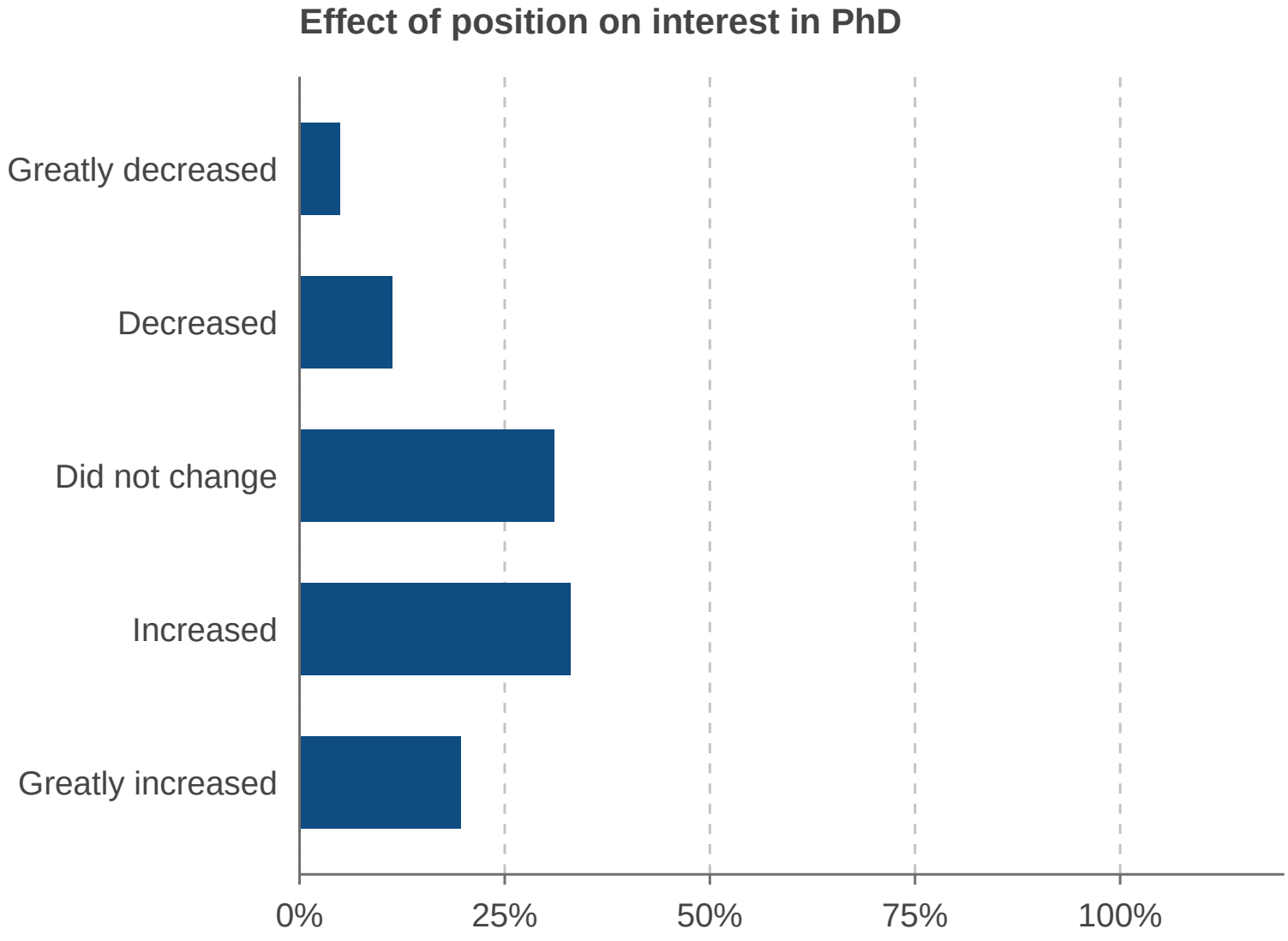
Frequency of interaction with principal investigator (PI) can vary widely



Common software used and development opportunities during position

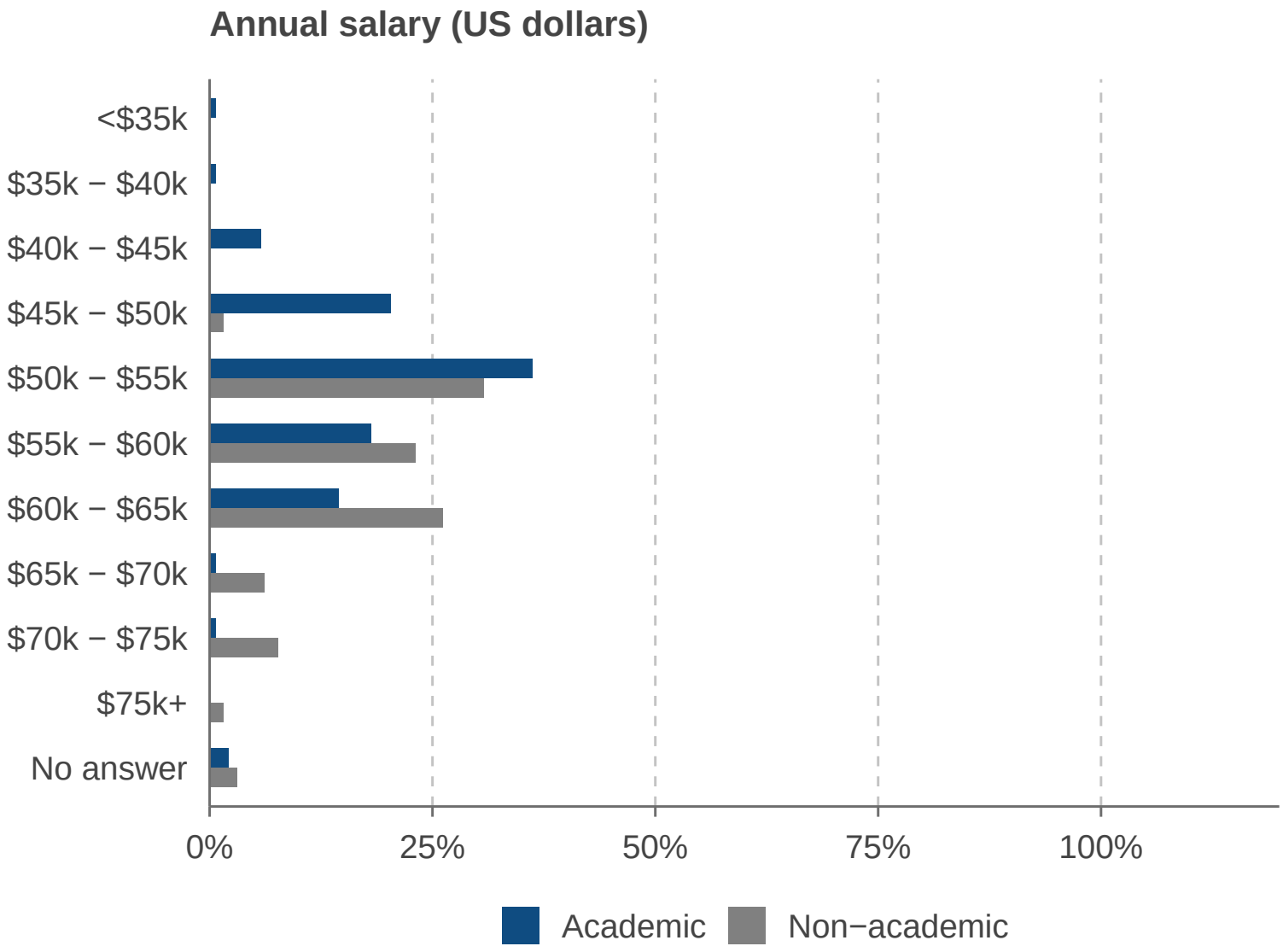


Majority of pre-docs find that position increases their interest in pursuing PhD

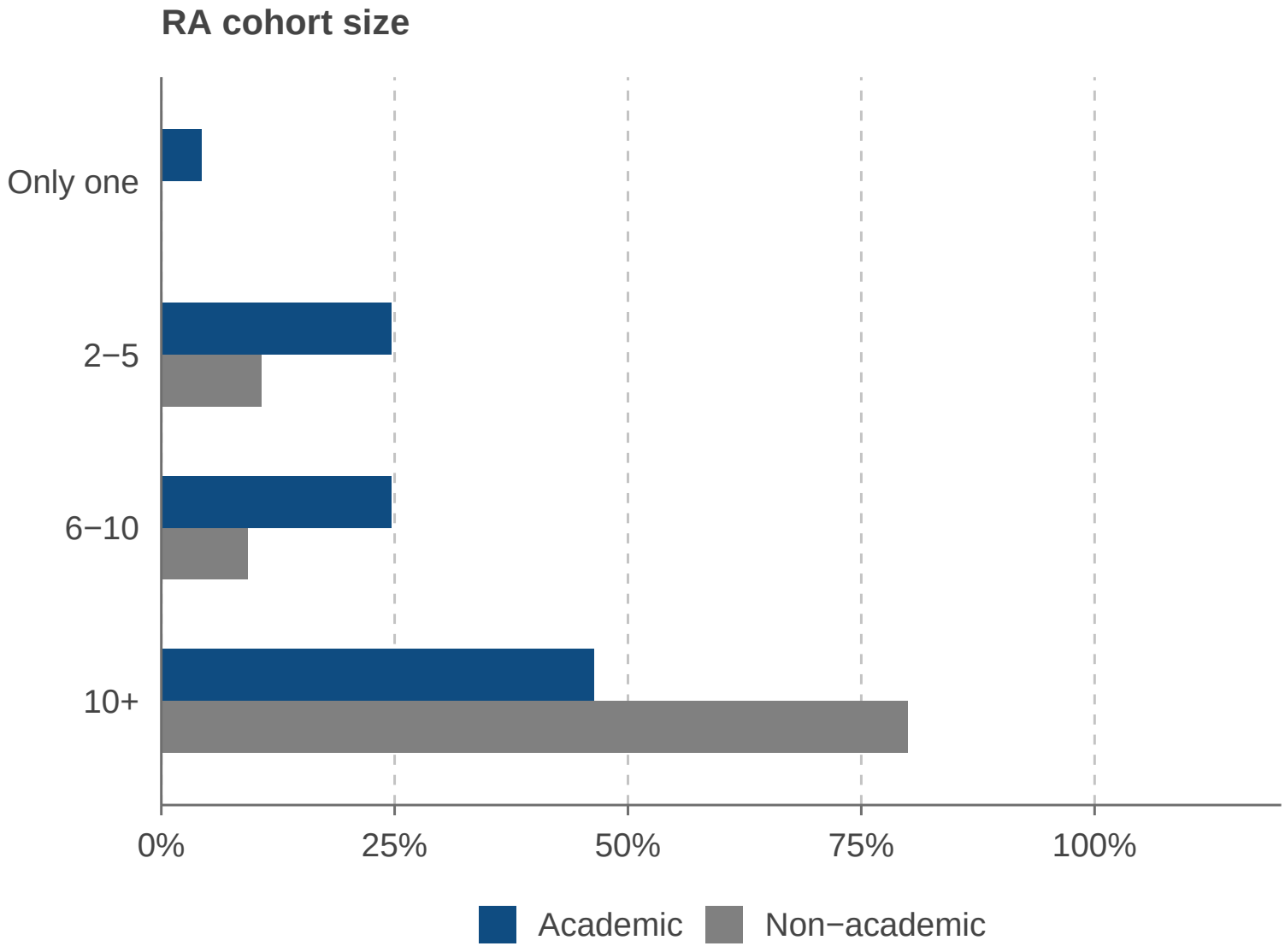


Academic vs Non-Academic Positions

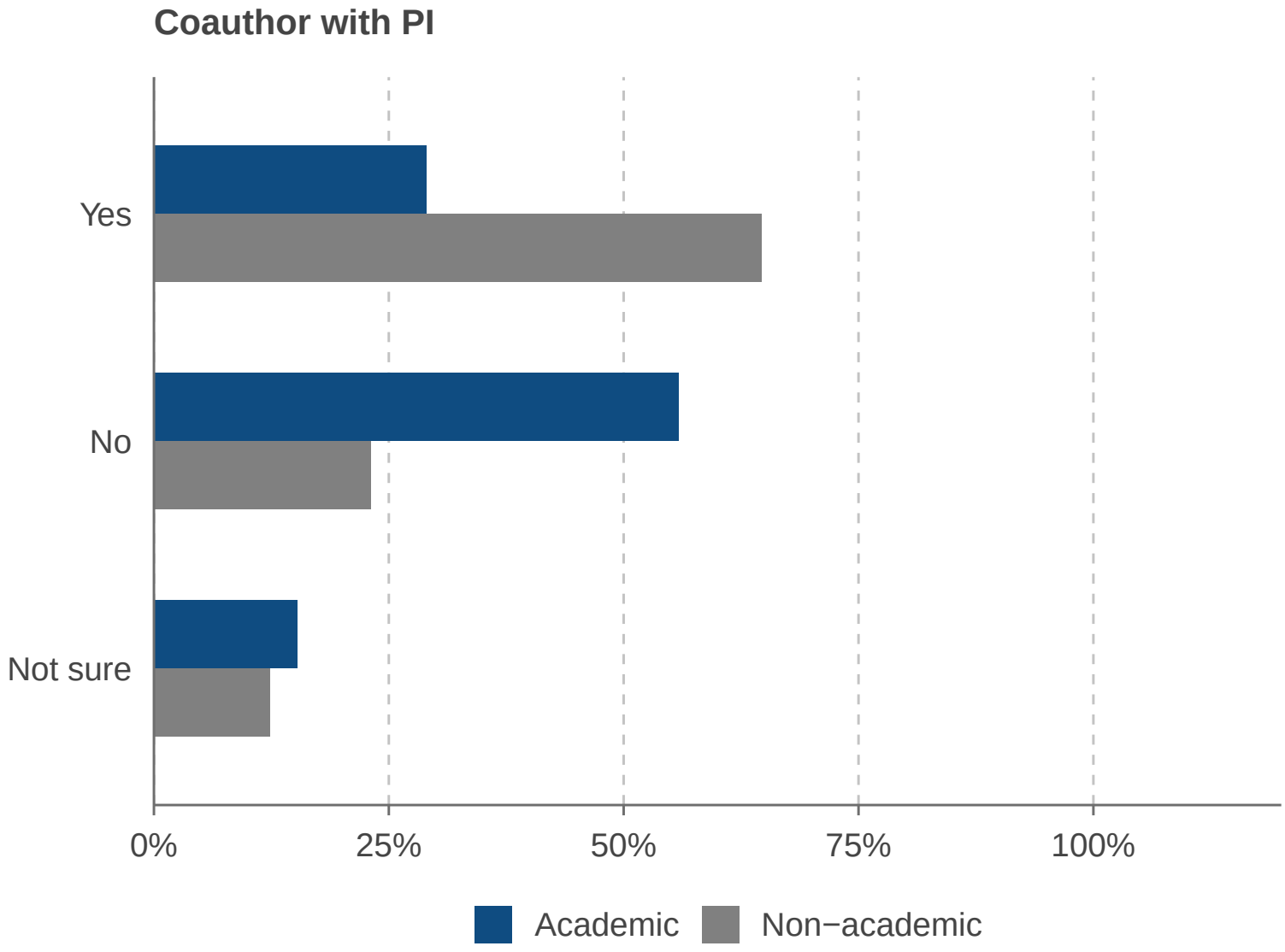
Wage gap between academic and non-academic pre-docs



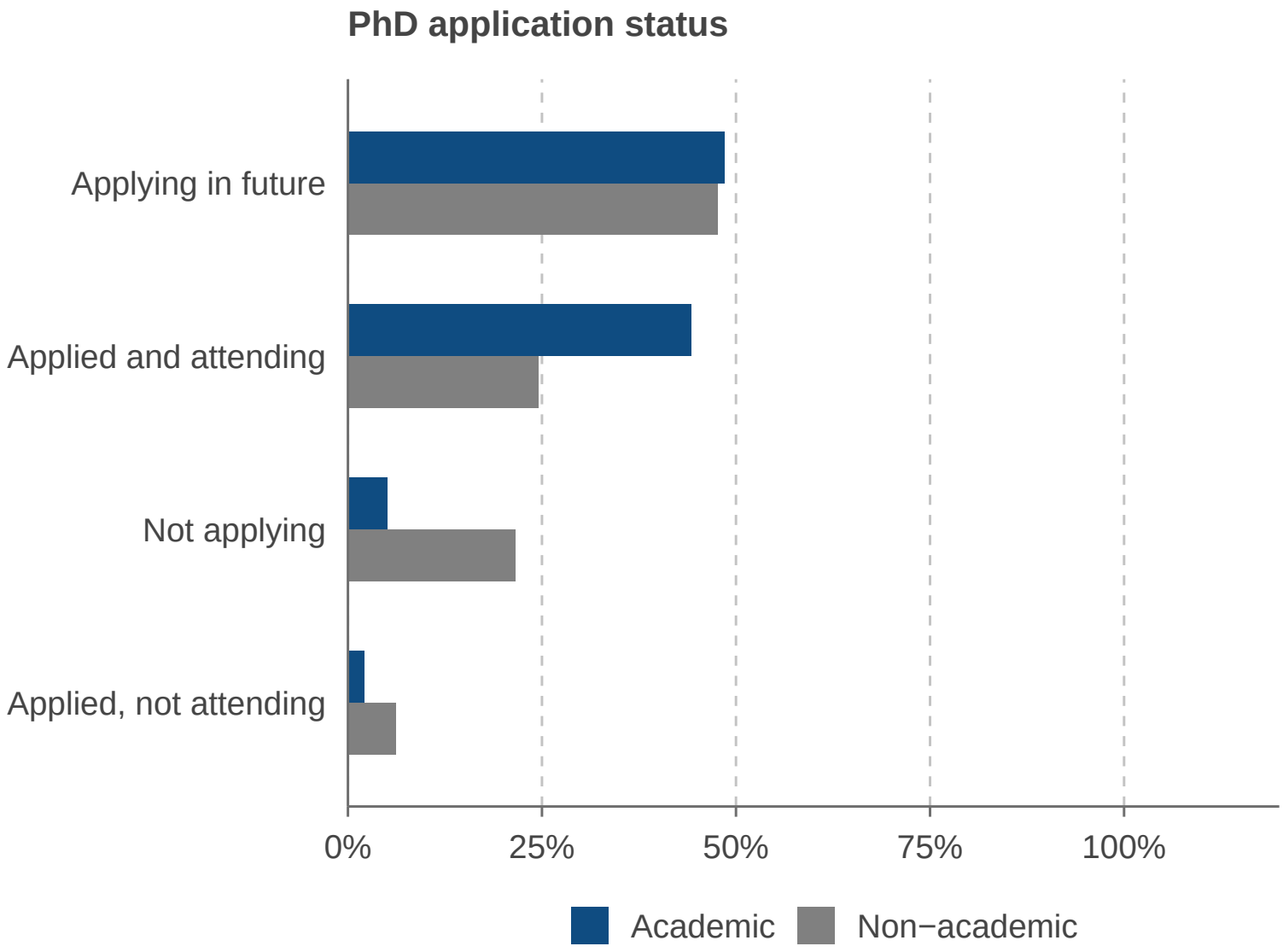
Non-academic institutions tend to have larger pre-doc programs/cohorts



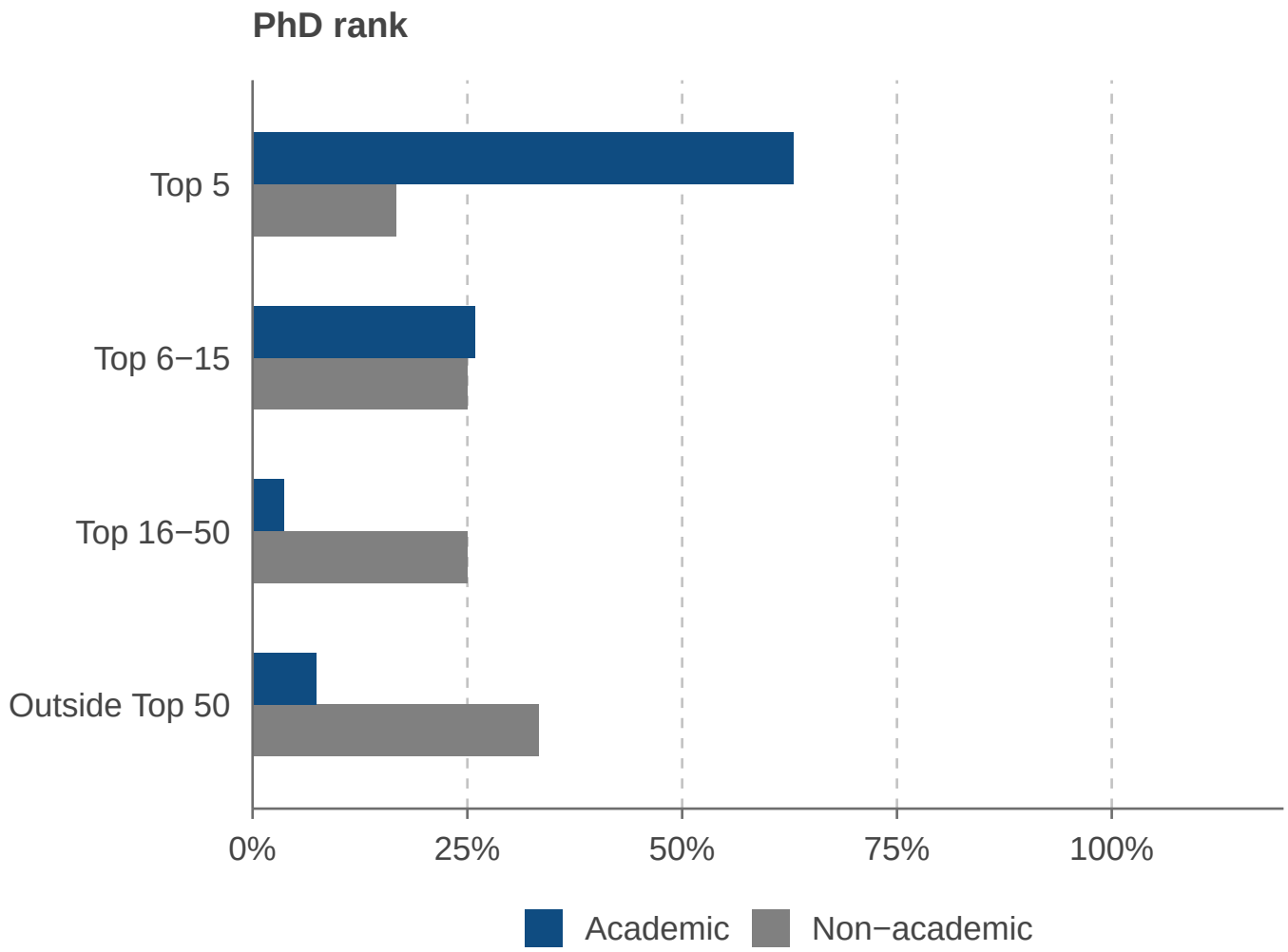
Coauthorship opportunities idiosyncratic to institution and PI



Academic pre-docs more likely to apply to PhD programs



Academic pre-docs more likely to attend PhD programs at “top” schools



Given the difficulty of aggregating program selectivity across disciplines, we use multidisciplinary ranking, recognizing that such a measure is highly imperfect. Source: 2020 US News Best Global Universities for Economics & Business.

Advice for Future Applicants

Takeaways from survey participants' free responses

- **Applying to a position**
  - Seek prior research experience and connections with professors
  - Apply widely
  - Develop prior coding experience
- **Selecting the "right" position**
  - Talk to previous RAs and others about your potential supervisors
  - Seek programs with RA "cohorts"
  - Take into account the reputation of researchers and past placements of RAs
  - Choose diverse working environments
- **Succeeding during the position**
  - Be self-sufficient
  - Work to develop a relationship with your supervisor
  - Don't be afraid to prioritize your own research or classes

References

References

Kevin A. Bryan. Young “Stars” in Economics: What They Do and Where They Go. *Economic Inquiry*, 57(3):1392–1407, 2019.