



Academic Female Finance Committee
of the American Finance Association

What Explains Differences in Finance Research Productivity During the Pandemic?

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https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3757548

Literature Review

Pandemic impact on research productivity

- Working paper posting increased during the lockdown (Kruger et al., 2020)
- Female academics with children appear most vulnerable to adverse productivity effects (Deryugina et al., 2020; Kruger et al., 2020; Cui et al., 2020; Amano-Patiño et al., 2020)
- During pandemic, women spend even more time on household responsibilities (Adams-Prassl et al., 2020)

Work-life (im)balances of university faculty

- Women faculty perform more household labor and childcare work than men (Schiebinger et al., 2008; Shollen et al., 2009; Bianchi et al., 2012; Minello, 2020)
- Women faculty also bear significantly larger service loads (Guarino and Borden, 2017; El-Alayli et al., 2018; Lundberg, 2020)
- The disproportionate burden of parenting, combined with the tenure system, drives underrepresentation of women in promotions and research publications (Kim and Moser, 2020)

University policy responses to the pandemic

- Caution against gender-neutral policies (e.g., tenure clock extensions) for exacerbating disadvantage for women (Antecol et al., 2018; Malisch et al., 2020)
- Recommend policy responses accounting for the disparate impact of—an opt-out tenure clock extension, more support to junior faculty, and non-essential service relief (Oleschuk, 2020)

Our Motivation

Existing studies document changes in research productivity during pandemic, but say less about the mechanisms

Our Contributions

1. Beyond just the effect of gender and children, we study how demographics relate to time allocations
 - Spirit of Myers et al. (2020), but broaden the set of production inputs
 - Physical/mental health, isolation, and ability to obtain timely feedback on work
2. Surveyed a large sample across ranks, including junior faculty and Ph.D. students
 - Understand differential effects of demographics, time use, and production inputs, highlight potentially important implications for junior scholars
3. Explore institutional effects
 - University's financial condition
 - University's decisions to extend tenure clocks

Survey Instrument

Design

- Invitation by e-mail, AFA qualtrics™
- Goal: Participation rate
 - Short228 seconds
 - Location not tracked or asked (except continent)
 - Variables asked: Likert scale 1-5 (not too personal or time consuming)

Implementation

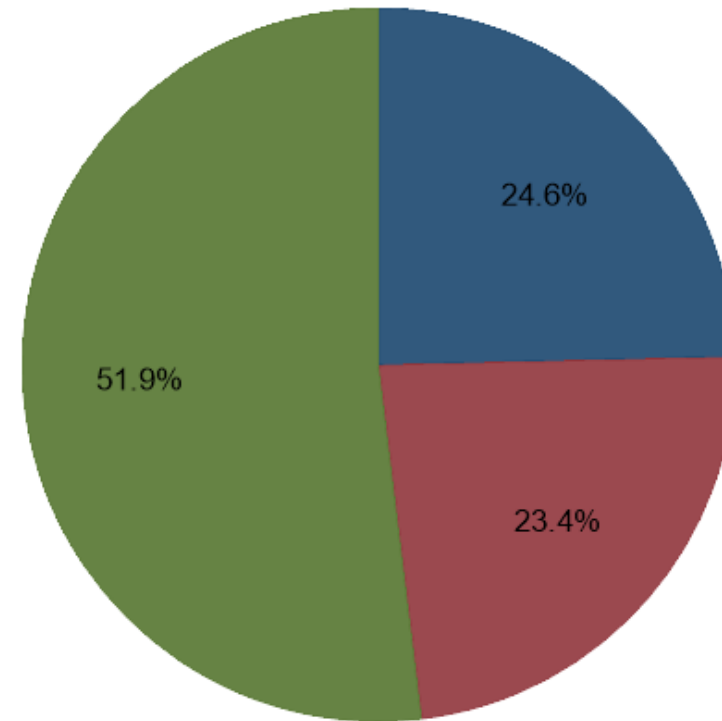
- Obtained IRB & data use contracts
- Distributed: 8,421 AFA members 10/26/20
- Deadline: 11/4/2020;
- Responses: 1,440 responses (17.1%)

Survey Components = Methodology

- **Research Productivity**
as a function of:
 - Pre-Determined Demographics and Rank
 - Time Allocation Decisions
 - Production Inputs
 - Support and feedback
 - Physical and mental health
 - Institutional Setting
 - Finances
 - Policy

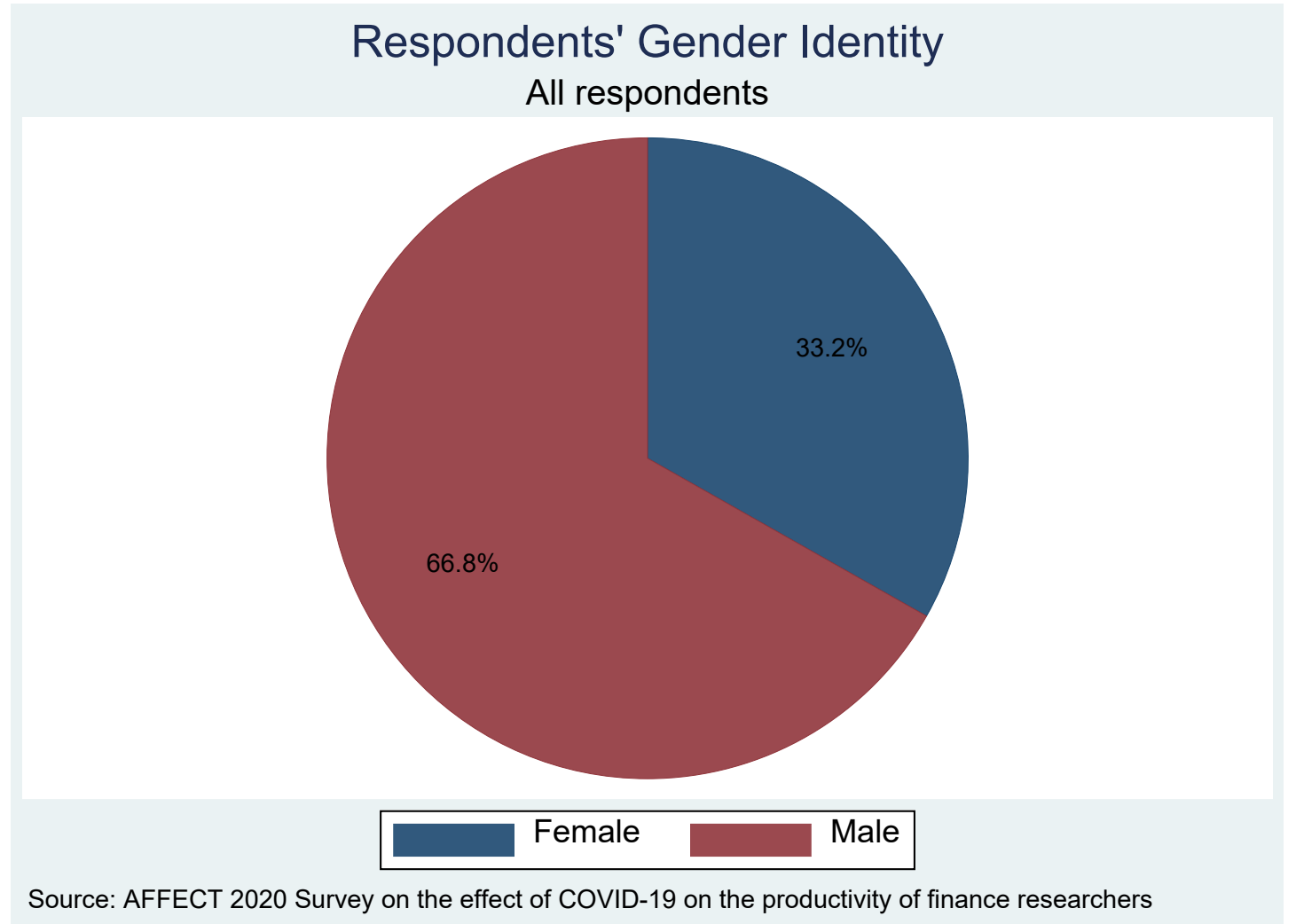
Sample Composition: Region

Respondents' Primary Workplace: Regions
All respondents



Source: AFFECT 2020 Survey on the effect of COVID-19 on the productivity of finance researchers

Sample Composition: Gender



Sample Composition: Children

In our sample:

Junior men are more likely to have young children than junior women.

Men are more likely to have a non-working spouse.

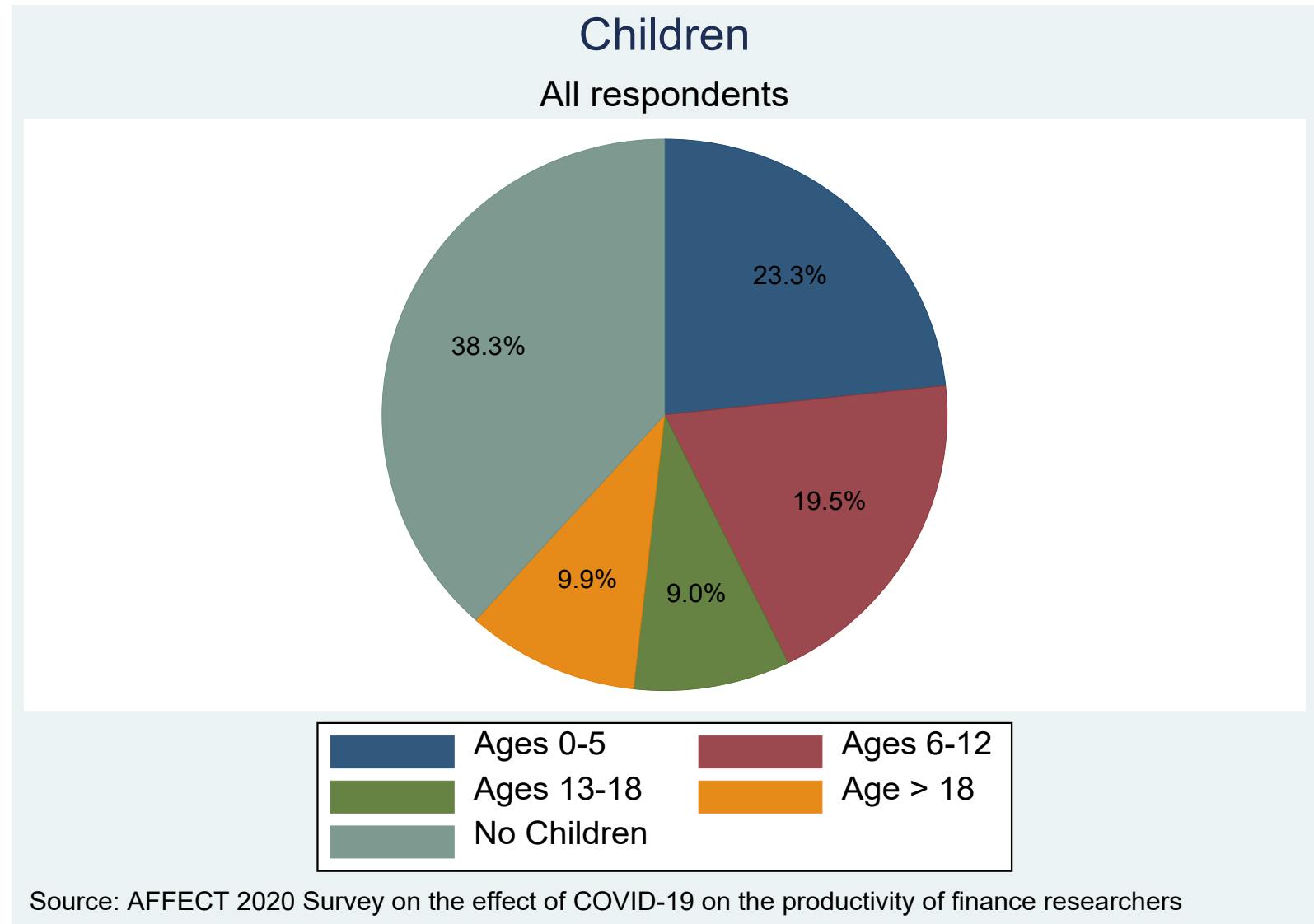
Note: *Childcardinal* variable

= 0 no children or >18

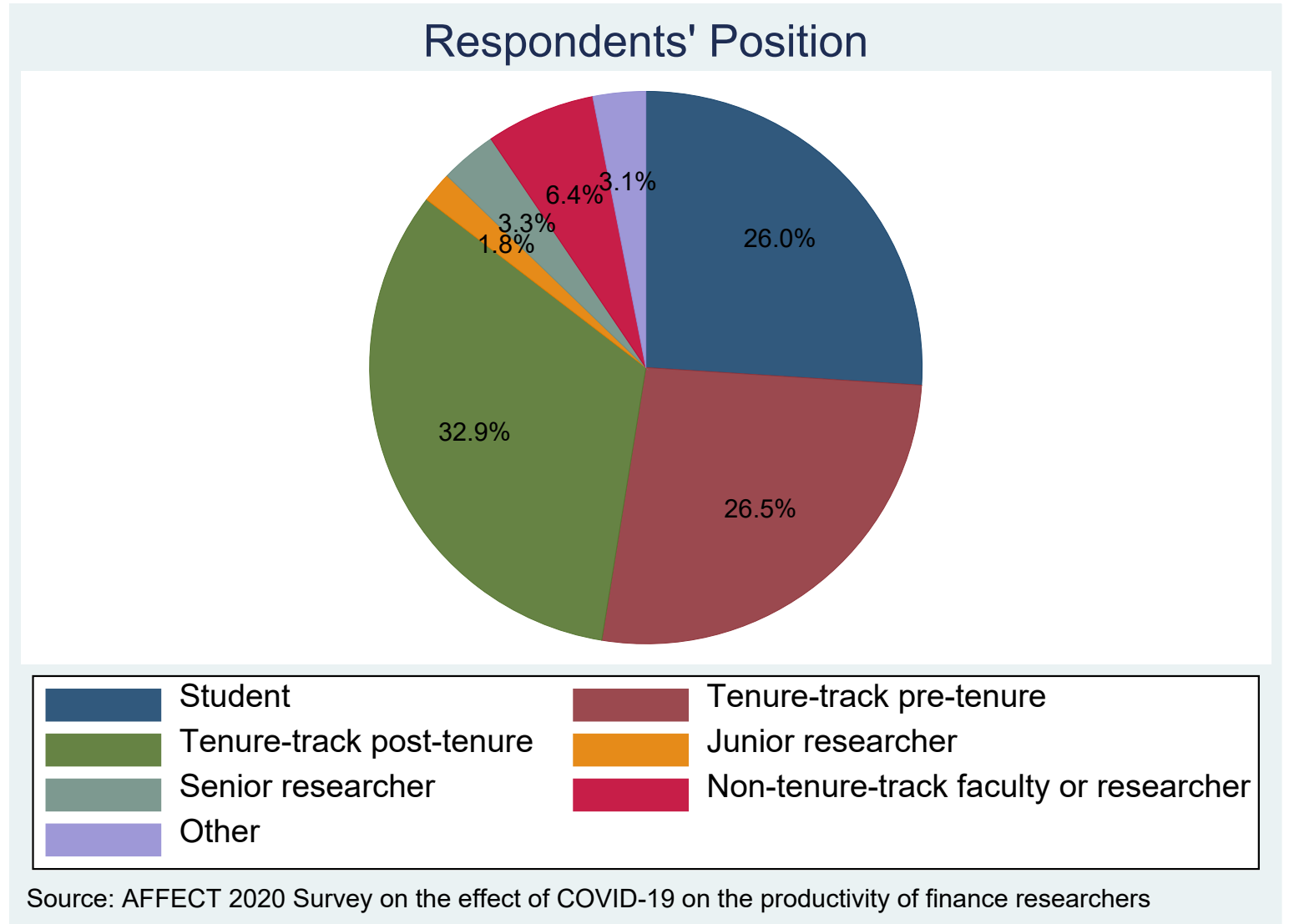
= 1 children 13-18

= 2 children 6-12

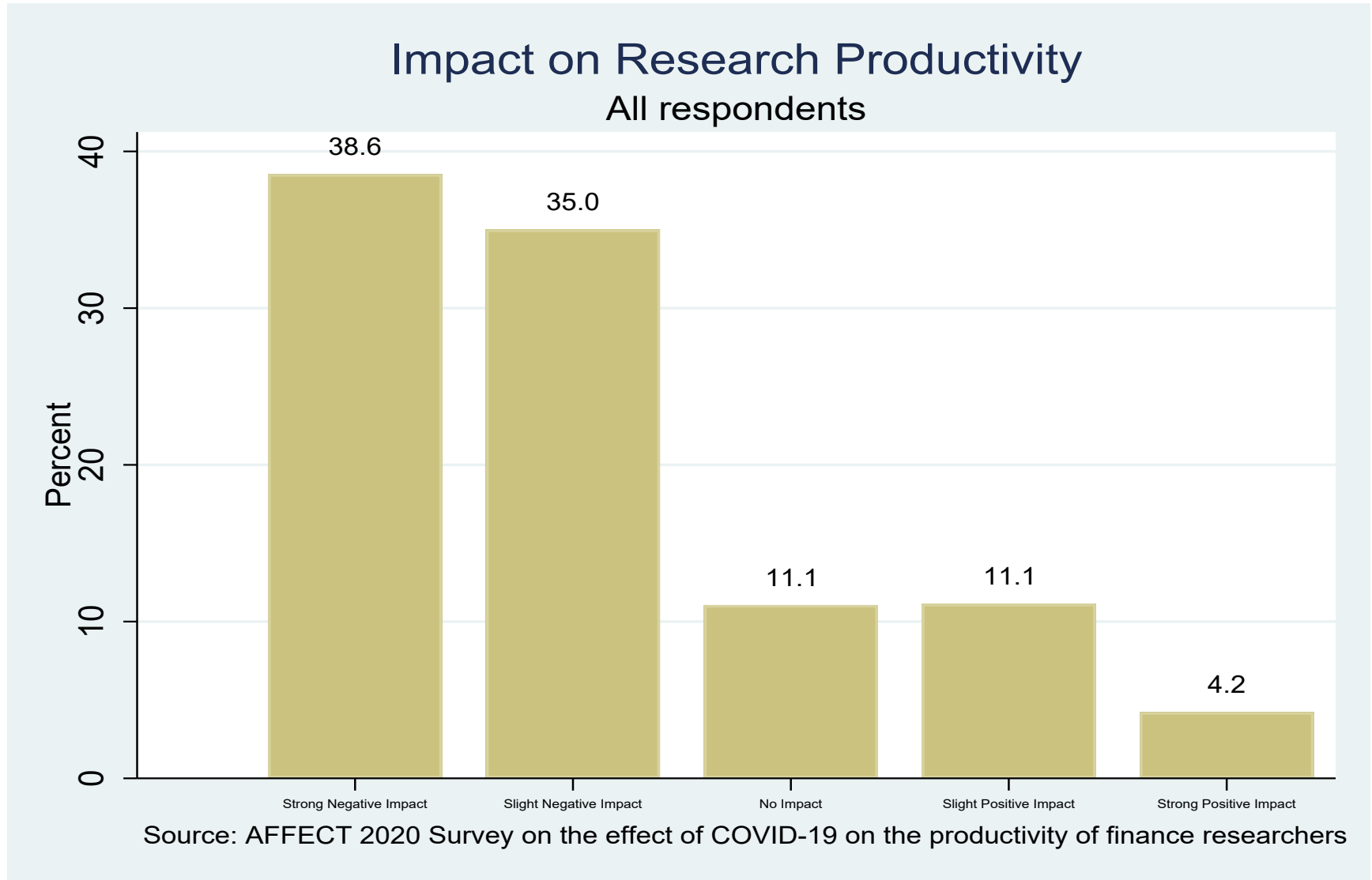
= 3 children 0-5



Sample Composition: Rank

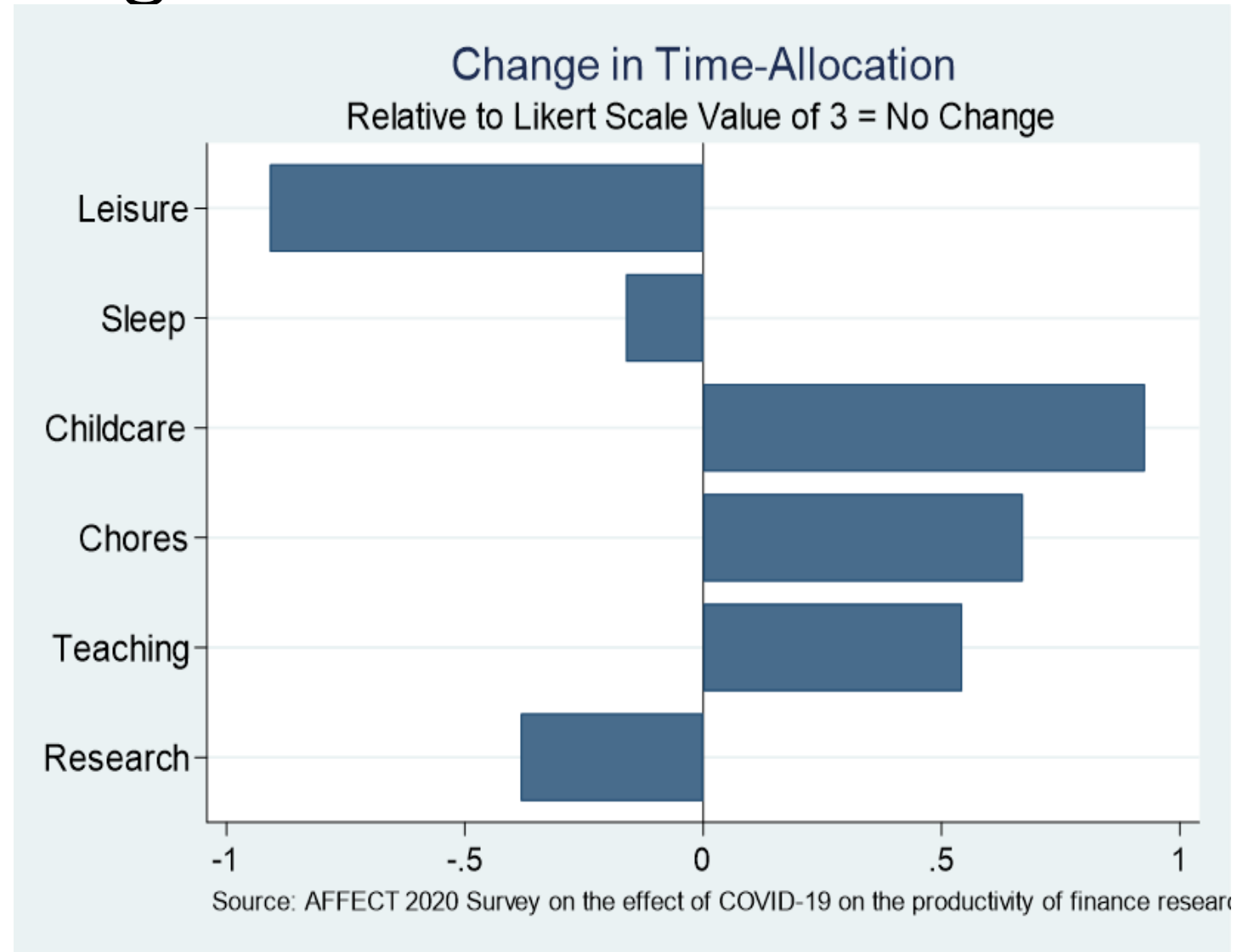


Data: Research Productivity



Note: Most variables are Likert Scale like this

Data: Time Use Averages on Likert Scale



Use of Time Reactions to the Pandemic=f(demographics)

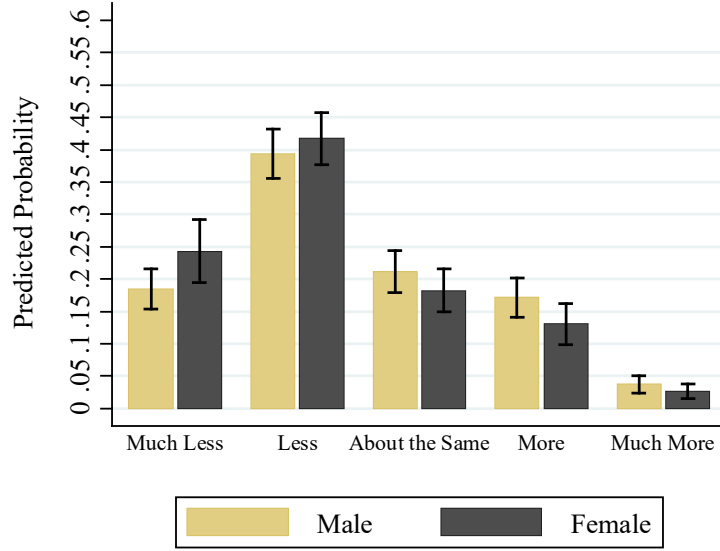
Ordered Logits (with seemingly-unrelated error)

Time responses: “much less”, “less”, “about the same”, “more”, “much more”

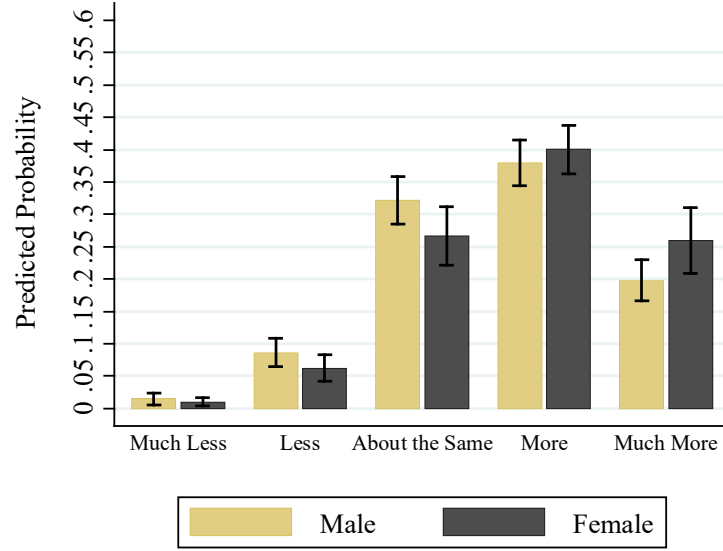
- **Women:** Less time on research and more on teaching, independent from children
- **Men & Women with Children:** less time on research and sleep/leisure and a lot more on childcare and chores

VARIABLES	(1) Time_ Research	(2) Time_ Teaching	(3) Time_ Chores	(4) Time_ Childcare	(5) Time_ Leisure	(6) Time_ Sleep
<i>Female</i>	-0.420** [0.199]	0.499** [0.221]	-0.0337 [0.211]	-0.308 [0.213]	0.0572 [0.202]	-0.0544 [0.236]
<i>Nonwork_spouse</i>	0.124 [0.165]	0.262* [0.158]	-0.125 [0.153]	-0.360* [0.189]	-0.210 [0.159]	-0.0787 [0.157]
<i>Childcardinal</i>	-0.596*** [0.0740]	-0.00674 [0.0680]	0.427*** [0.0736]	1.631*** [0.112]	-0.272*** [0.0697]	-0.539*** [0.0740]
<i>Female*Childcardinal</i>	0.0320 [0.121]	-0.0916 [0.132]	0.173 [0.133]	0.442** [0.203]	-0.282** [0.136]	-0.141 [0.140]
Observations	731	731	731	731	731	731

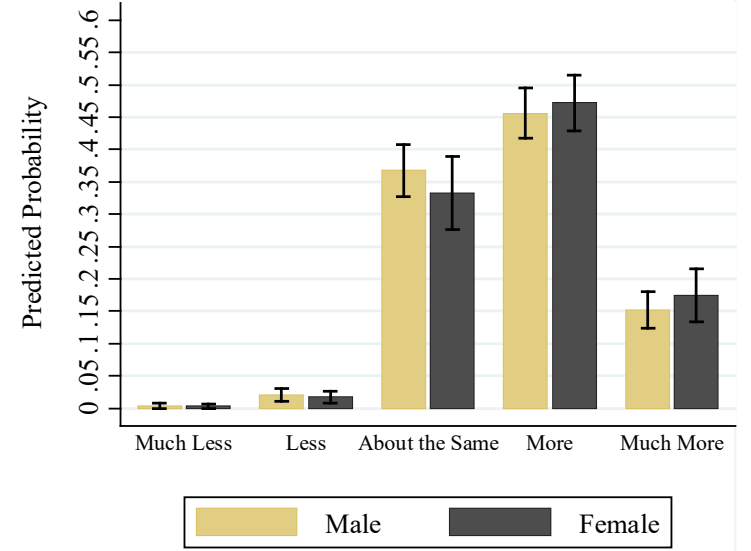
Time_Research



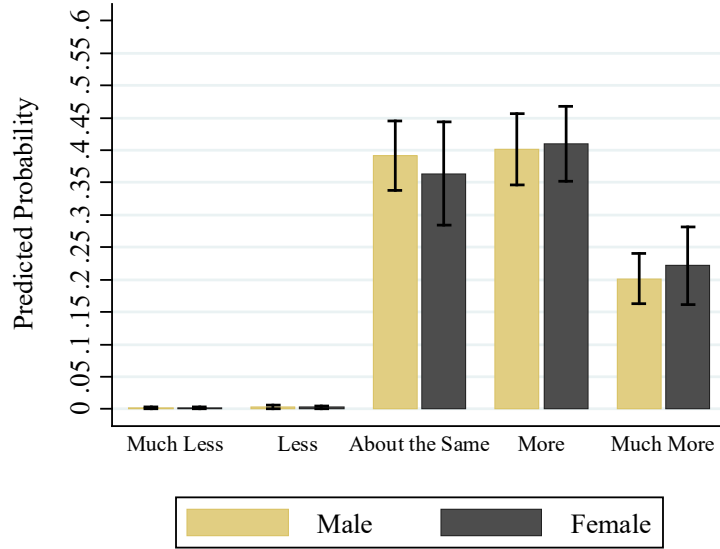
Time_Teaching



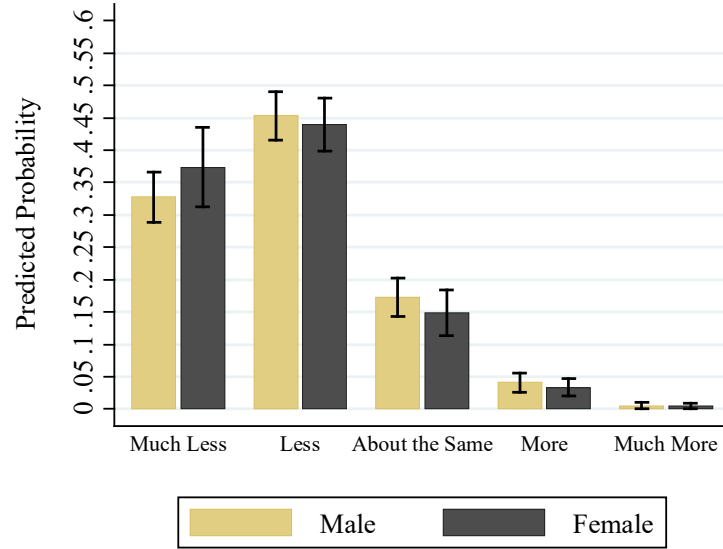
Time_Chores



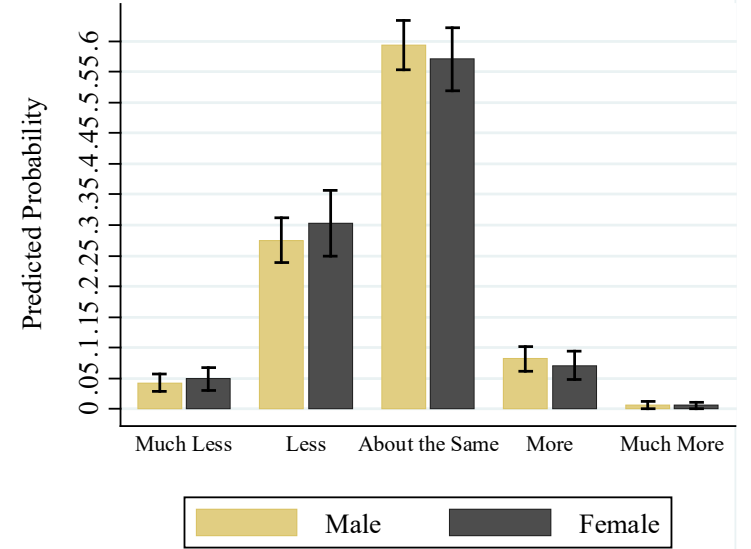
Time_Childcare



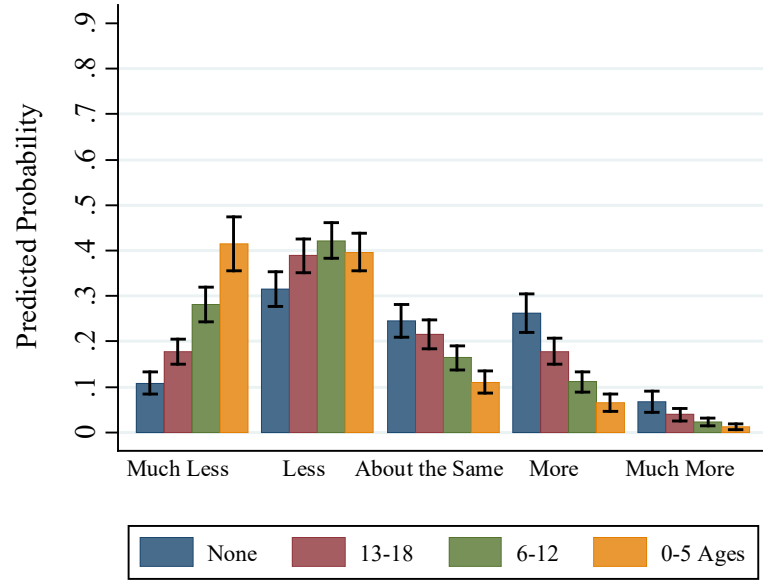
Time_Leisure



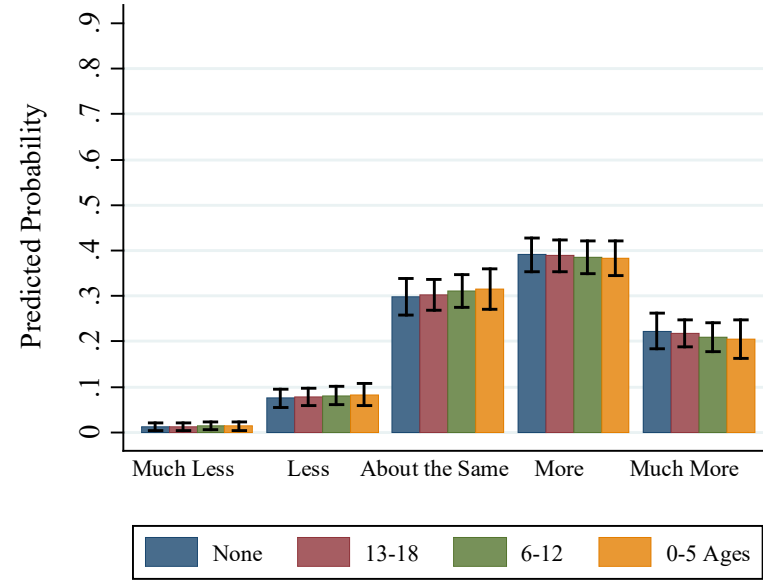
Time_Sleep



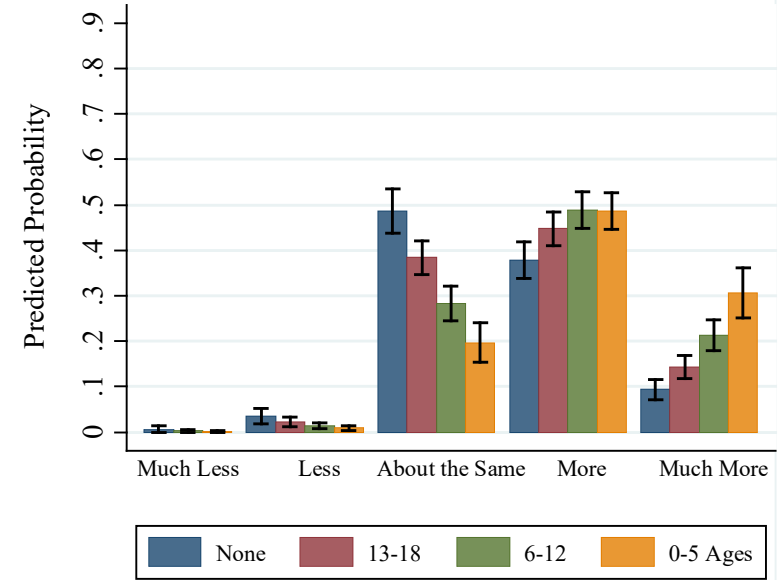
Time_Research



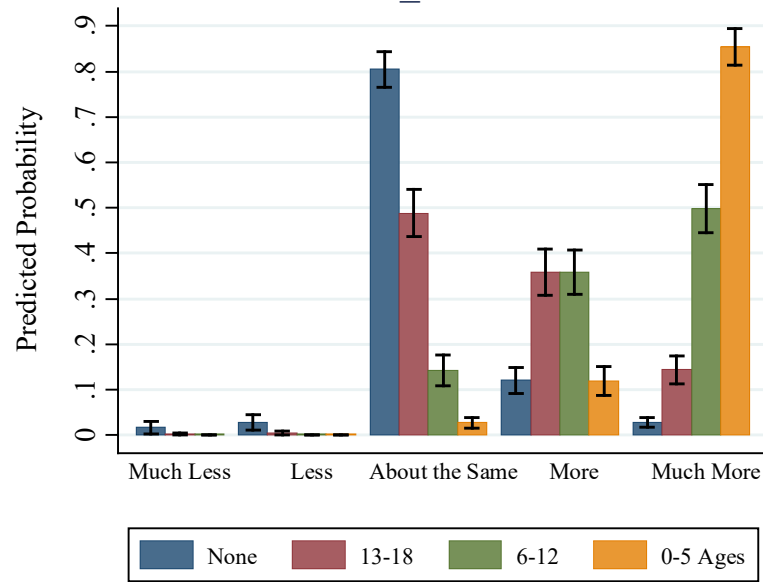
Time_Teaching



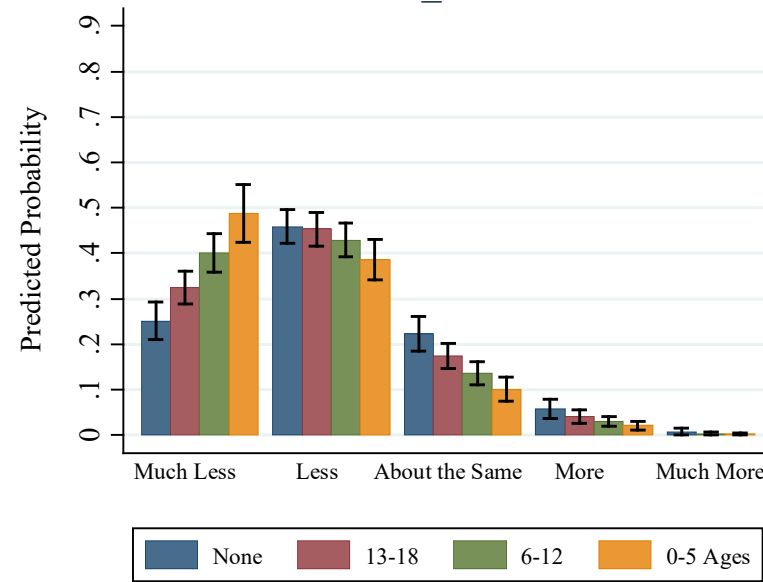
Time_Chores



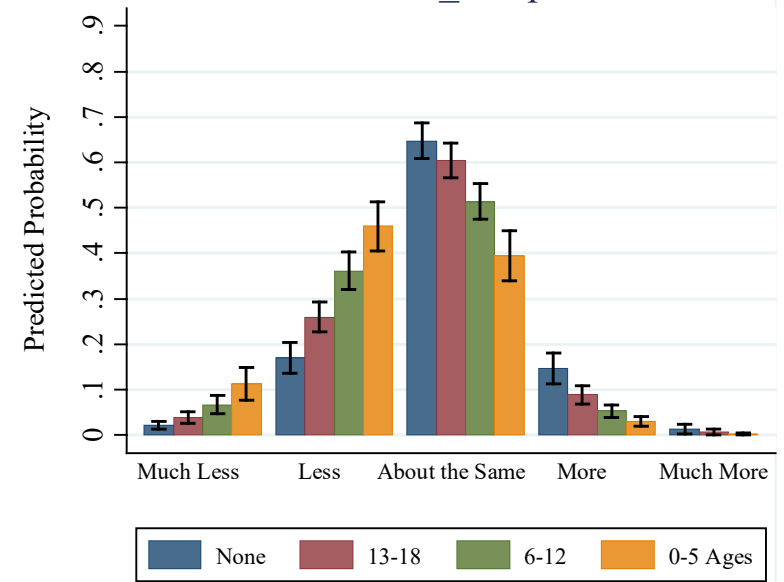
Time_Childcare



Time_Leisure



Time_Sleep

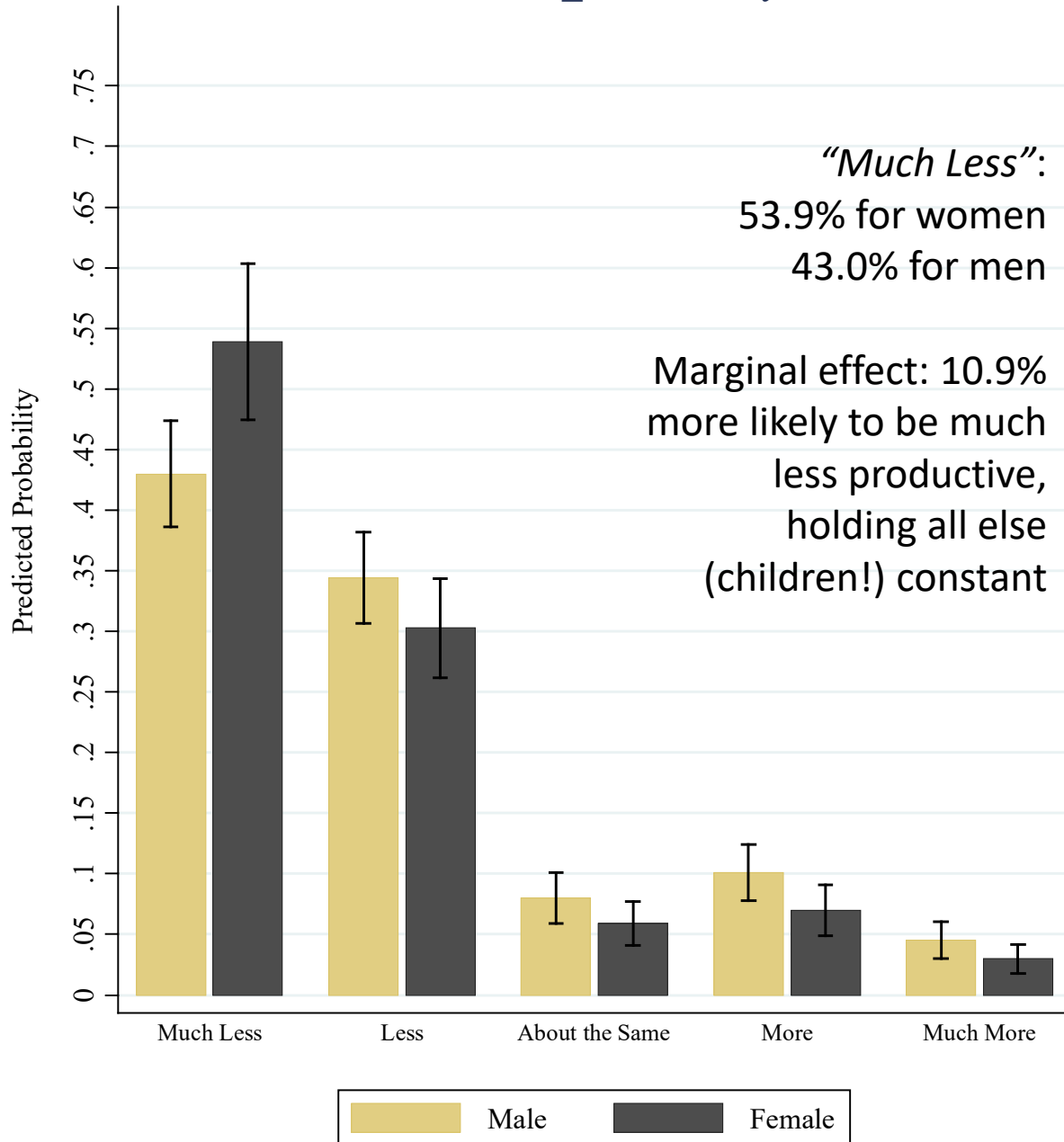


Research Productivity = f(demographics + time choice mechanisms + production inputs)

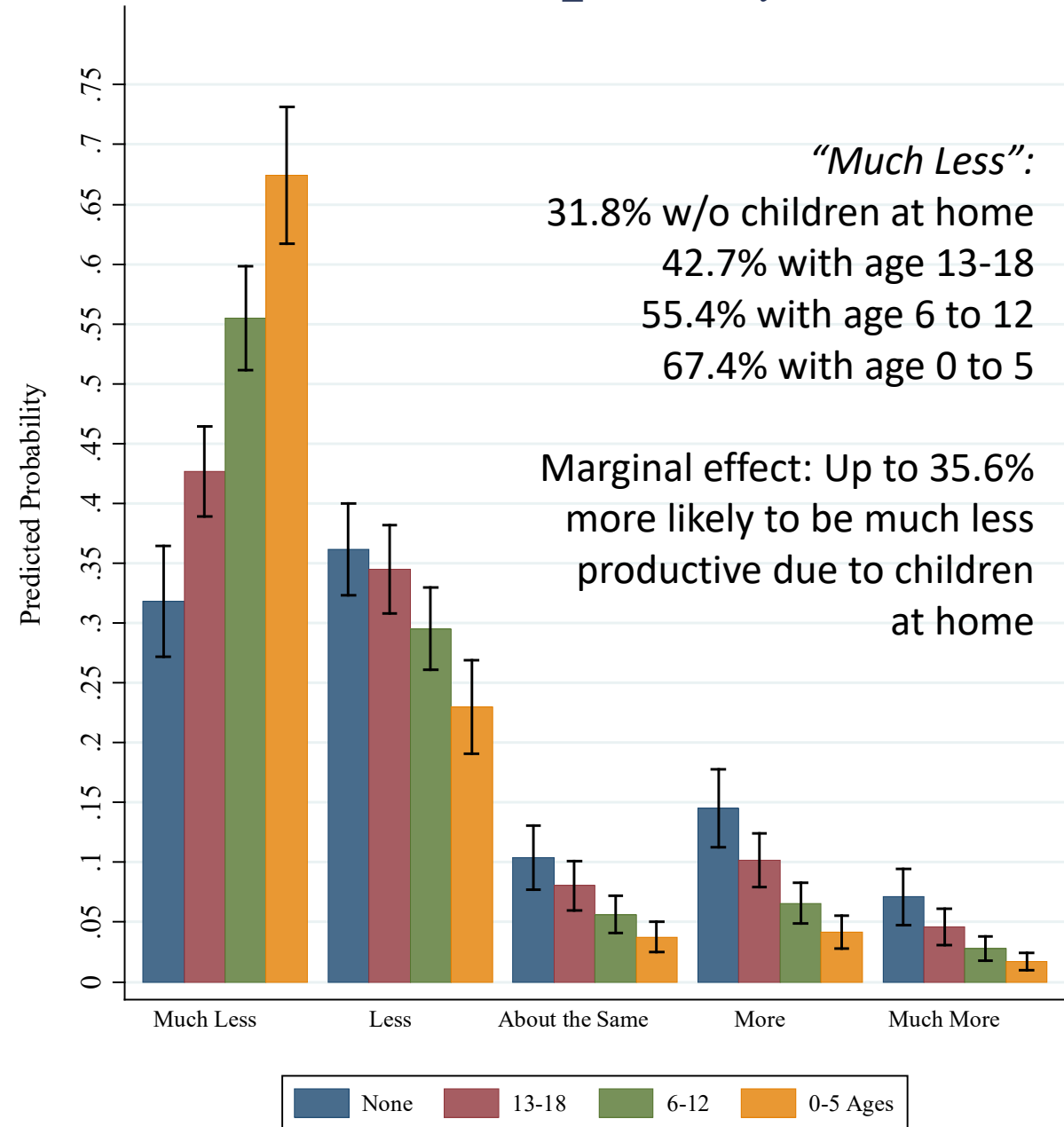
- **Women:** Lower research product that is not explained by mechanisms
- **Time_Childcare:** Explains the children effect
- **Time_Chores and Time_Teaching:** Strong mechanisms
- **Production Inputs:** Feedback, Health, and, to a lesser magnitude, Isolation

	Research_ Productivity	Research_ Productivity	Research_ Productivity	Research_ Productivity
<i>Female</i>	-0.650*** [0.213]	-0.794*** [0.217]	-0.718*** [0.219]	-0.514** [0.223]
<i>Nonwork_spouse</i>	0.305* [0.163]	0.208 [0.167]	0.277 [0.168]	0.197 [0.171]
<i>Childcardinal</i>	-0.550*** [0.0740]	-0.00796 [0.0931]	-0.0617 [0.0940]	-0.117 [0.0989]
<i>Female*Childcardinal</i>	0.192 [0.134]	0.378*** [0.135]	0.378*** [0.138]	0.382*** [0.142]
<i>Time_Childcare</i>		-1.000*** [0.126]	-0.951*** [0.128]	-0.920*** [0.134]
<i>Time_Chores</i>		-0.404*** [0.108]	-0.456*** [0.110]	-0.319*** [0.113]
<i>Time_Teaching</i>			-0.600*** [0.0820]	-0.514*** [0.0840]
<i>Feedback</i>				-0.577*** [0.0979]
<i>Isolation</i>				-0.128* [0.0748]
<i>Health</i>				-0.385*** [0.0760]
Observations	731	731	731	730

Research_Productivity



Research_Productivity



Research Productivity Effects, by Rank

Mechanisms, by rank:

- **Senior:** Gender, time spent in Childcare, Chores and Teaching. Also Feedback and Health.
- **Junior:** Smaller: Gender effects, time Teaching and concerns about Health.
- **Students:** No impact of Gender or Children. But Feedback, Isolation and Health are all important.

	Senior Faculty		Junior Faculty		Students	
<i>Female</i>	-0.733**	-0.471	-0.399	-0.584*	-0.0666	0.0505
	[0.311]	[0.333]	[0.305]	[0.321]	[0.243]	[0.250]
<i>Nonwork_spouse</i>	0.0473	-0.0300	0.538*	0.491	-0.228	-0.0772
	[0.204]	[0.214]	[0.283]	[0.301]	[0.299]	[0.310]
<i>Childcardinal</i>	-0.618***	-0.183	-0.474***	-0.0144	-0.148	-0.0559
	[0.109]	[0.139]	[0.106]	[0.146]	[0.154]	[0.186]
<i>Female*childcardinal</i>	0.142	0.494**	0.175	0.341*	-0.326	-0.239
	[0.214]	[0.234]	[0.176]	[0.188]	[0.233]	[0.246]
<i>Time_Childcare</i>		-0.875***		-1.064***		-0.215
		[0.178]		[0.209]		[0.220]
<i>Time_Chores</i>		-0.332**		-0.319**		-0.293*
		[0.160]		[0.162]		[0.155]
<i>Time_Teaching</i>		-0.608***		-0.441***		-0.193
		[0.114]		[0.129]		[0.140]
<i>Feedback</i>		-0.587***		-0.548***		-0.522***
		[0.134]		[0.151]		[0.134]
<i>Isolation</i>		-0.106		-0.150		-0.272***
		[0.100]		[0.115]		[0.102]
<i>Health</i>		-0.427***		-0.267**		-0.392***
		[0.101]		[0.122]		[0.130]
Observations	402	401	329	329	277	277

Intensity of Explanatory Factors by Gender * Rank

Explanatory factors, by rank:

- **Junior:** More concerns about Feedback, Isolation and Health. Less likely to have a Non-working spouse; more likely to have young Children (men only)
- **Students:** More concerns about Health and Isolation. Less likely to have a Non-working spouse, less likely to have Children.

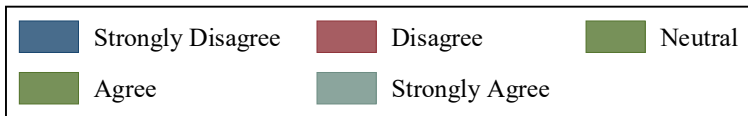
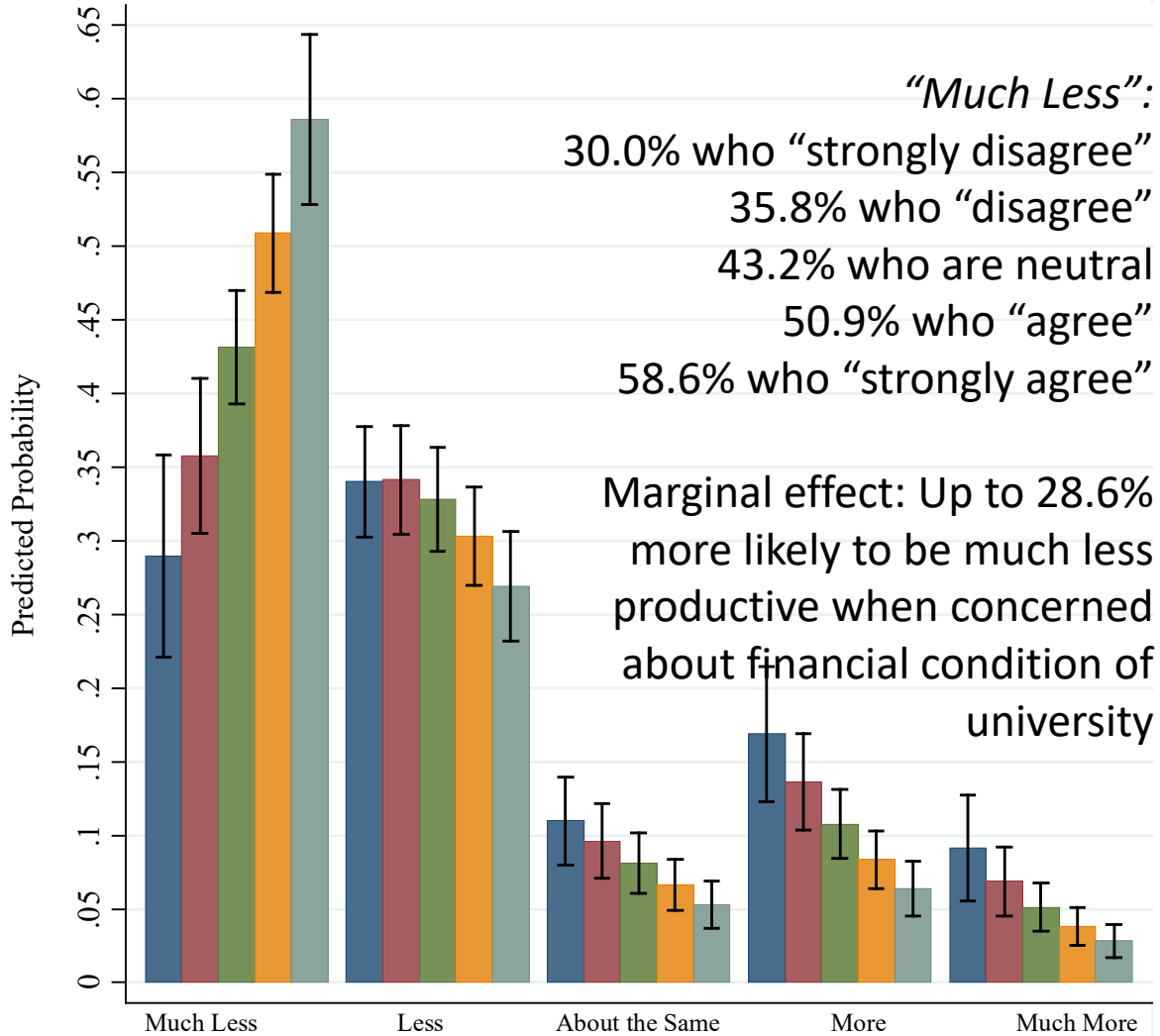
	Feedback	Isolation	Health	Nonwork_ spouse	Child cardinal
<i>Junior</i>	1.012*** [0.169]	0.344** [0.160]	0.850*** [0.167]	-0.576*** [0.203]	0.555*** [0.164]
<i>Female</i>	0.864*** [0.209]	0.0770 [0.203]	0.524** [0.207]	-0.851*** [0.276]	0.120 [0.190]
<i>Junior*Female</i>	-0.812*** [0.304]	0.190 [0.298]	-0.337 [0.298]	-0.129 [0.451]	-0.652** [0.299]
<i>Student</i>	0.00210 [0.189]	0.423** [0.184]	1.460*** [0.191]	-0.632*** [0.232]	-1.436*** [0.229]
<i>Student*Female</i>	-0.372 [0.307]	-0.119 [0.303]	-0.551* [0.307]	0.123 [0.437]	-0.126 [0.358]
Sample	Faculty + Students	Faculty + Students	Faculty + Students	Faculty + Students	Faculty + Students
Observations	1,007	1,008	1,008	1,008	1,008

Institutions: Finances and Policy Reactions

Concern about financial health of employer:
 Robust negative effect on Research Productivity.
 Increases concerns about Feedback, Health and Isolation.

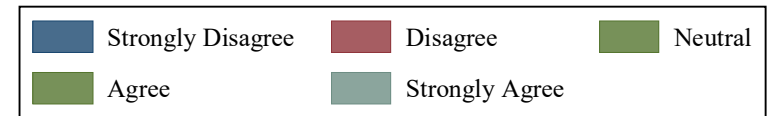
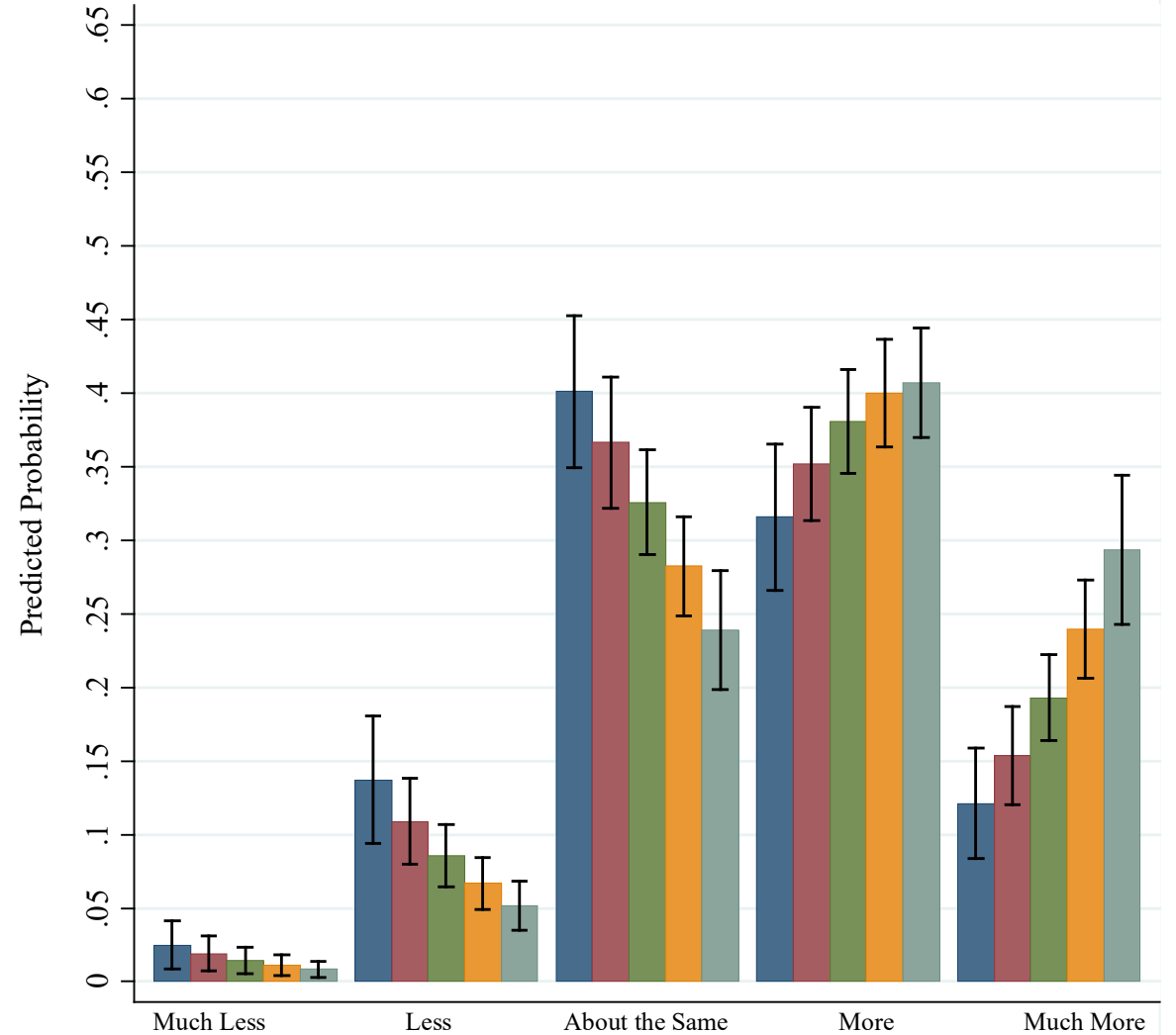
	(1)	(2)	(3)	(4)	(5)	(6)
	Research_ Productivity	Time_ Research	Time_ Teaching	Feedback	Isolation	Health
<i>Panel A. Employer Finances</i>						
<i>Employer_Finances</i>	-0.307*** [0.0621]	-0.216*** [0.0610]	0.272*** [0.0606]	0.282*** [0.0632]	0.313*** [0.0630]	0.378*** [0.0641]
Observations	731	731	731	730	731	731

Research_Productivity



I worry about the financial condition of my employer

Time_Teaching



I worry about the financial condition of my employer

Institutions: Finances and Policy Reactions

- **Concern about financial health of employer:** Robust negative effect on research productivity. Increases concerns about Feedback, Health and Isolation.
- **Clock extensions:** Associated with productivity declines and less time spent Teaching.

	(1)	(2)	(3)	(4)	(5)	(6)
	Research_ Productivity	Time_ Research	Time_ Teaching	Feedback	Isolation	Health
<i>Panel A. Employer Finances</i>						
<i>Employer_Finances</i>	-0.307*** [0.0621]	-0.216*** [0.0610]	0.272*** [0.0606]	0.282*** [0.0632]	0.313*** [0.0630]	0.378*** [0.0641]
Observations	731	731	731	730	731	731
<i>Panel B. Clock Extensions for junior sample only</i>						
<i>ExtendClock</i>	-0.388* [0.232]	-0.319 [0.221]	-0.376* [0.220]	0.325 [0.228]	0.269 [0.221]	0.286 [0.219]
Observations	329	329	329	329	329	329

Conclusions

- There is substantial heterogeneity in the impact of the pandemic on research.
- Negative effects are particularly large for:
 - Faculty with young children (more likely to be junior)
 - Women
 - Faculty at institutions with weaker finances
- Mechanisms are important.
 - Time spent engaged in teaching activities, childcare and chores.
 - Feelings of isolation and concern for health. More severe for junior faculty.
- We need deliberate policies that factor in the underlying mechanisms.
 - Junior Faculty: One-size-fits-all clock extensions can have unintended consequence of increasing disparity.
 - Students: Awareness of the impact on the mental health of the next generation of scholars.
 - Across Institutions: Awareness of the variation across institutions with more vs. less financial resilience to the COVID-19 shock

Appendix

Table 2. Family Structure by Gender and Rank

	All Faculty (N=731)			Senior Faculty (N=402)			Junior Faculty (N=329)			PhD Students (N=277)		
	Men	Women	Men - Women	Men	Women	Men - Women	Men	Women	Men - Women	Men	Women	Men - Women
<i>NonworkingSpouse</i>	0.295	0.142	0.153***	0.345	0.183	0.161***	0.228	0.100	0.128***	0.219	0.119	0.099**
<i>Child_0to5</i>	0.334	0.306	0.028	0.222	0.239	-0.017	0.484	0.373	0.111*	0.159	0.143	0.016
<i>Child_6to12</i>	0.301	0.306	-0.005	0.324	0.459	-0.134**	0.269	0.155	0.115**	0.060	0.079	-0.020
<i>Child_13to18</i>	0.141	0.137	0.004	0.229	0.257	-0.028	0.023	0.018	0.005	0.026	0.024	0.003
<i>Child_0to18</i>	0.605	0.562	0.044	0.608	0.670	-0.062	0.603	0.455	0.148**	0.199	0.198	0.000
<i>Childcardinal</i>	1.275	1.187	0.088	1.102	1.183	-0.081	1.507	1.191	0.316**	0.490	0.484	0.006

*** p<0.01, ** p<0.05, * p<0.1