

# **Panel Session on Employment Dynamics, Labor Markets, Phillips Curve and Inflation**

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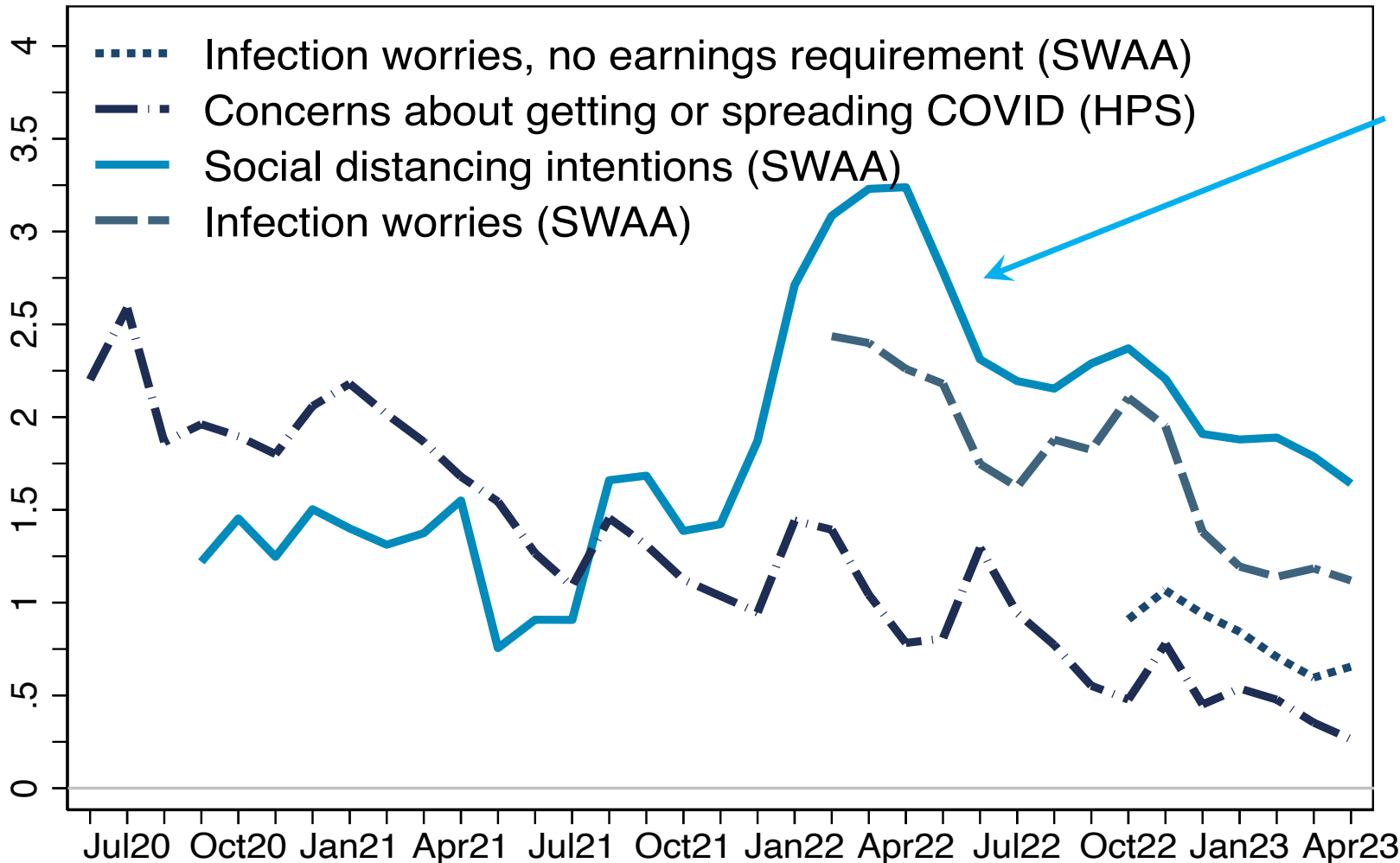
# Recent Extraordinary Labor Market Developments

1. Social Distancing: Labor Force Withdrawal & Return
2. The Big Shift to Work from Home (WFH)
  1. Amenity-value gains moderated wage growth on the transition path to a new equilibrium.
  2. New locational flexibility creates ongoing opportunities for firms to reduce real product wages.
  3. New working arrangements open up new job options that can expand labor supply.

# **Social Distancing and Infection Worries: Labor Force Withdrawal & Return**

# Estimated Labor Force Drag from Social Distancing and Infection Worries, June 2020 to April 2023

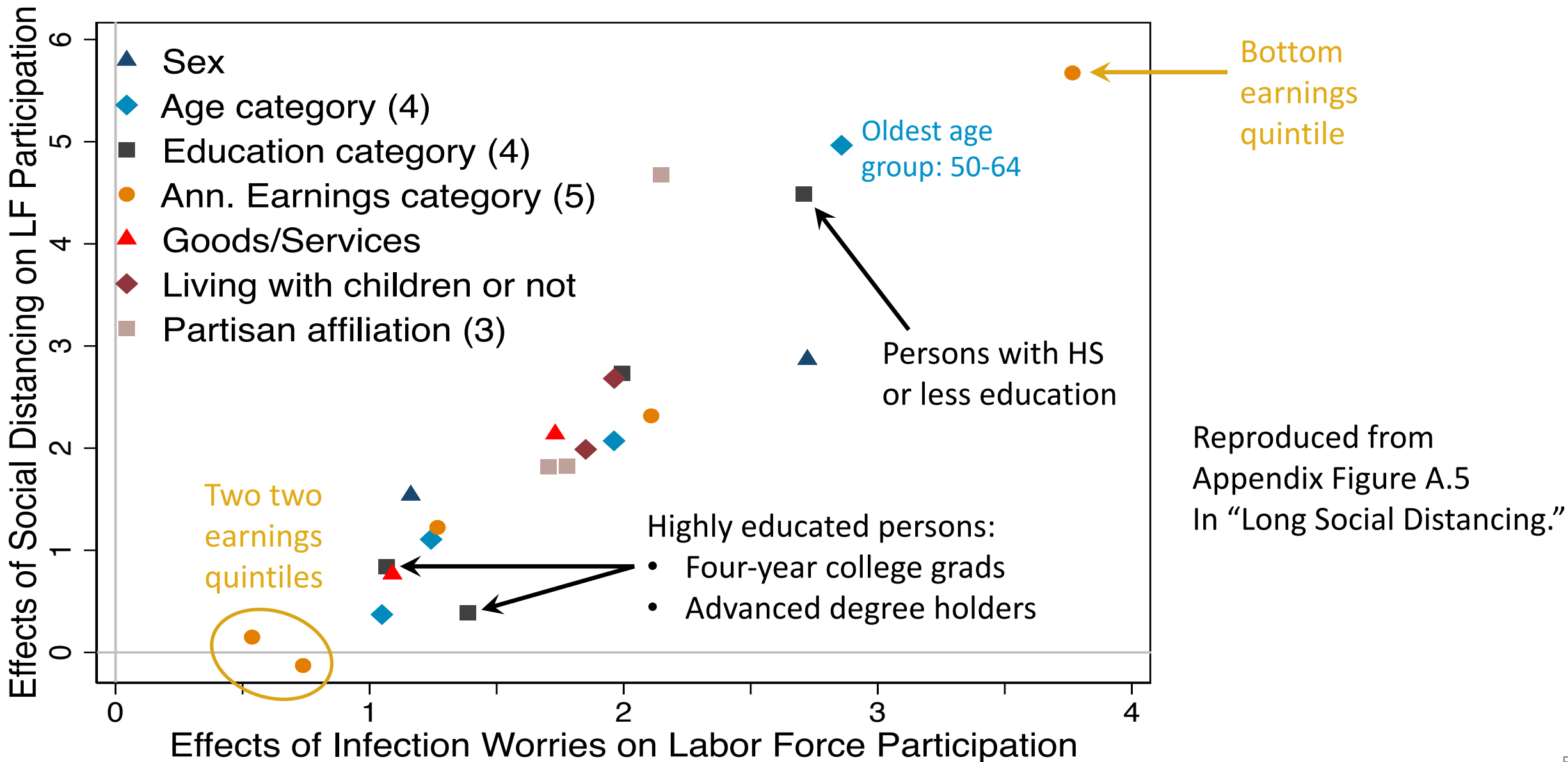
Estimated drag on participation rate, percentage points



Based on regression model that relates LF status to stated social-distancing intentions. Identification rests on exogeneity of social-distancing intentions, conditional on controls.

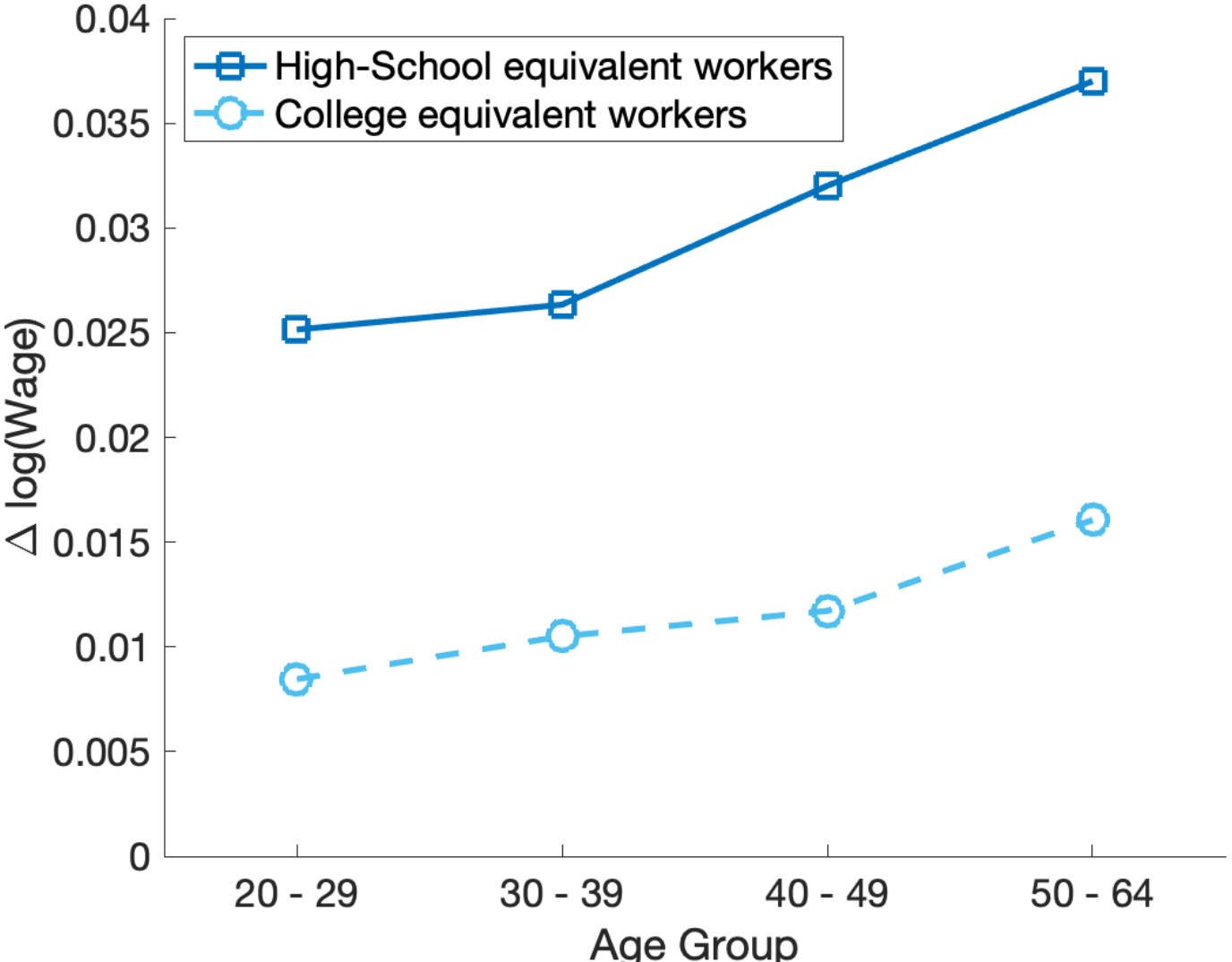
The other estimates reflect explanations for own out-of-LF status, as elicited from three different question designs across two independent surveys. Identification rests on accuracy of the elicitations.

# Labor Force Drag Estimates by Group, Feb. 2022 to Jan. 2023



# Social Distancing Effects on Labor Supply Raise the Relative Wages of Older and Less Educated Workers

Wage Structure Effects of Social Distancing as of 2022



**Notes:** We combine estimated drag effects with the labor market equilibrium model of Card and Lemieux (2001) to derive social distancing effects on the wage structure. To do so, we first regress non-participation status on social distancing intentions for each age-education group. Each regression yields a group-level drag effect. We then compute the labor supply shifts implied by the group-level drag effects and measured hours. Finally, we insert the labor supply shifts into the equilibrium model to obtain the implied effects on the age-education structure of mean log wages. When implementing this last step, we set the elasticity of substitution across age groups within an education category to 5 (following Card and Lemieux) and the elasticity between education groups to 1.41 (following Katz and Murphy, 1992). See “Long Social Distancing” by Barrero, Bloom and Davis for more information.

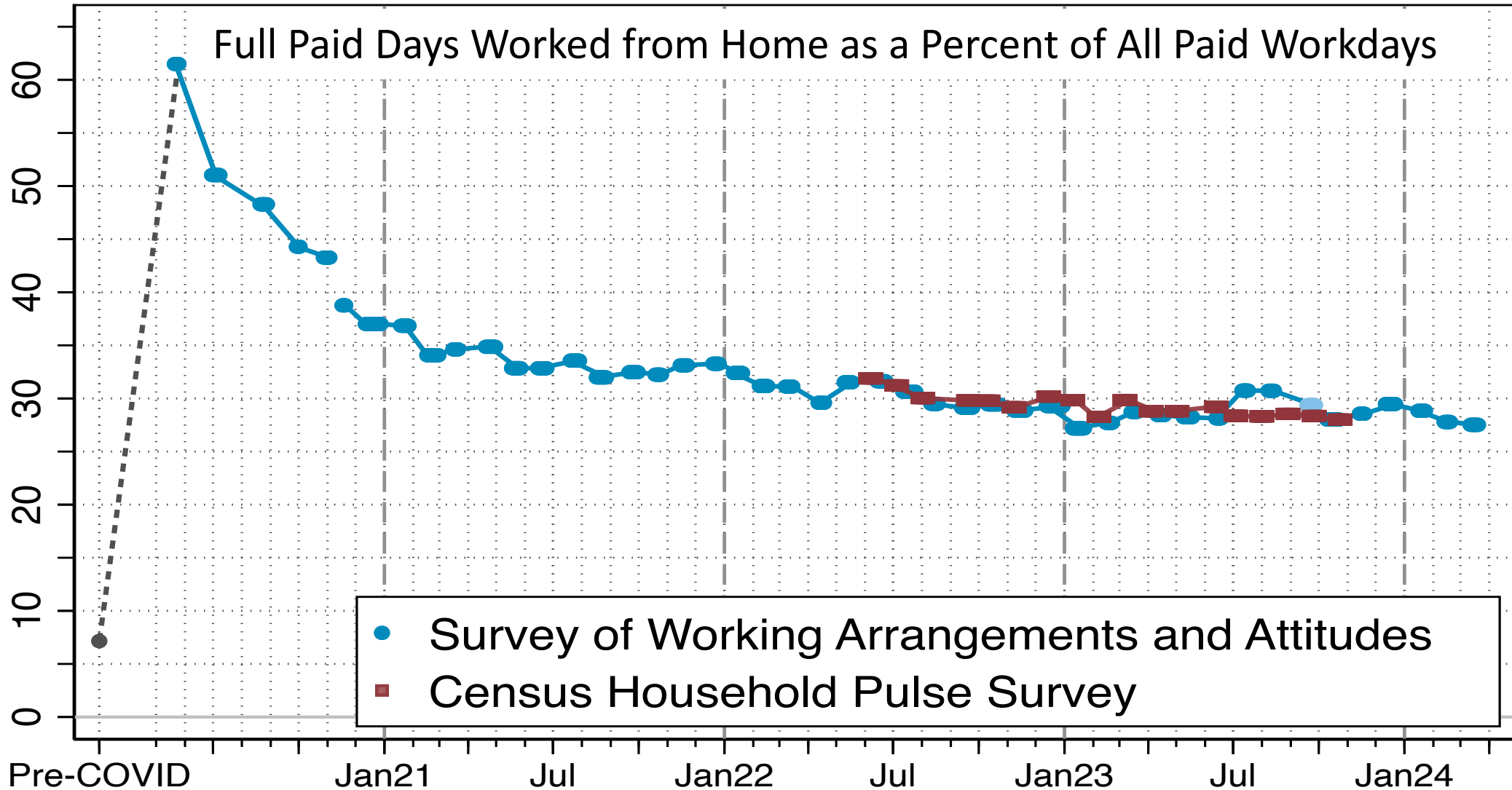
# Implications for Inflationary Pressures

1. Labor force withdrawal drove up wages in 2020 and 2021, especially in the lower rungs of the earnings distribution and for jobs filled by less educated workers.
2. The reversal of this process restrained wage growth in 2022 and 2023. Again, the effects were concentrated among those with less education and lower pay.
3. The timing of the reversal was fortuitous for the Fed, as it roughly coincided with its efforts to cut the inflation rate.
4. This LF withdrawal and reversal largely play out by early/late 2023 → no more good luck for the Fed from this source.

# **The Big, Abrupt, Lasting Shift to WFH**



# WFH over Time in the U.S. from 2019 to March 2024



Notes: Samples restricted to working persons, 20-64, with annual earnings > \$10K. We estimate the “Pre-COVID” percentage using data from the 2019 American Time Use Survey. Source: “Why Working from Home Will Stick” by Barrero, Bloom and Davis (2021) and monthly updates available at [www.WFHresearch.com](http://www.WFHresearch.com)

# Direct Worker Benefits of WFH

Most workers like to work from home at least part of the week, because doing so ...

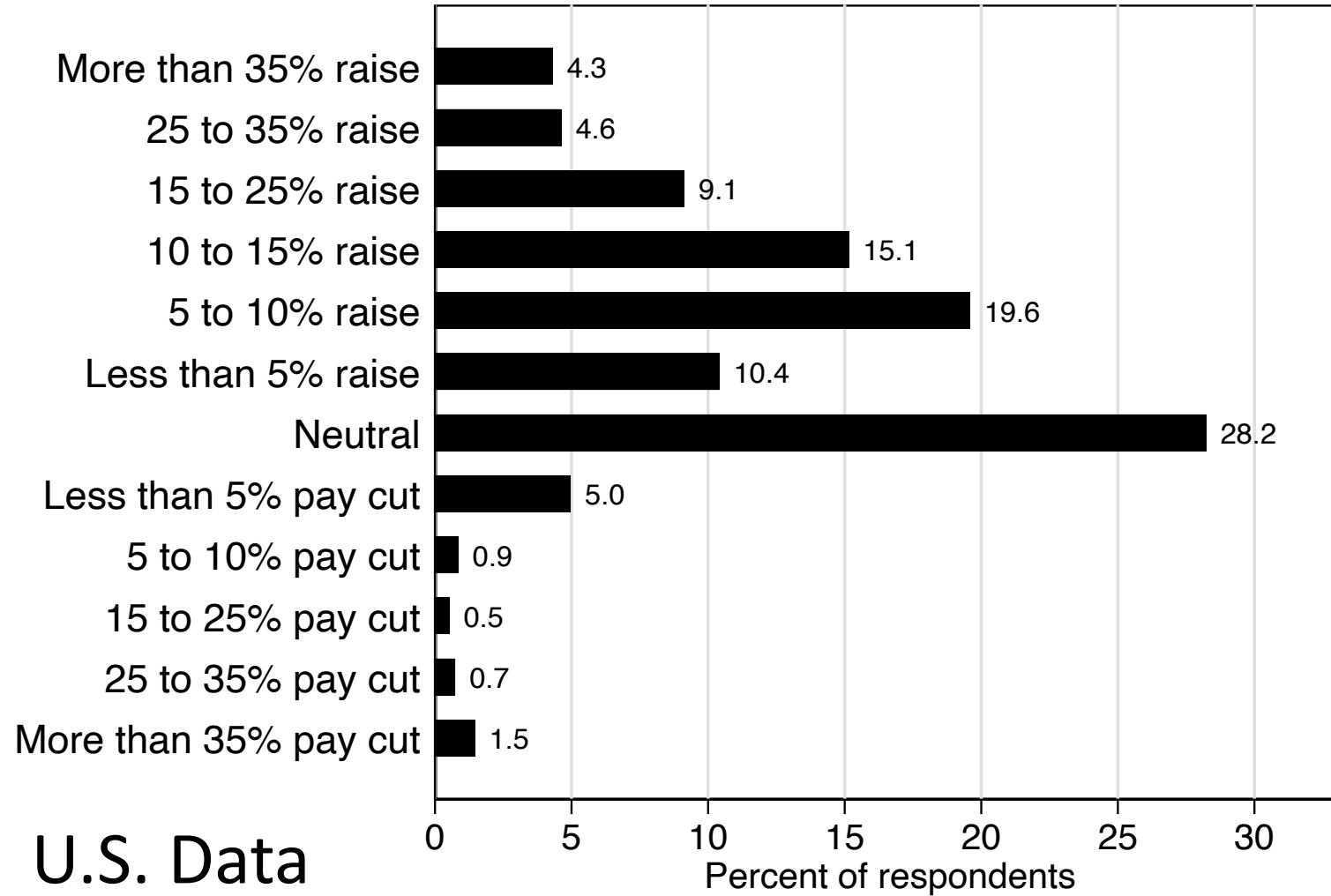
1. Saves on time and money costs of commuting and grooming (about 65 minutes per day, on average)
2. Adds flexibility in time use over the day
3. Increases personal autonomy
4. Relaxes locational constraints

For some people, WFH also complements care-giving activities at (or near) home.

# When Asked Directly, Most People Value the Option to Work from Home. Many Value It Highly.

Mean Value = 8% of Pay, Similar to Findings in Experimental Settings with Narrower Samples

### Value of the option to WFH 2 - 3 days/wk, % of current pay?



## U.S. Data

Source: SWAA responses to a two-part question.

Part 1: **After COVID, in 2022 and later**, how would you feel about working from home **2 or 3 days** a week?"

- Positive: I would view it as a benefit or extra pay
- Neutral
- Negative: I would view it as a cost or a pay cut

Part 2: How much of a **pay raise [cut]** (as a percent of your current pay) would you value as much as the option to work from home 2 or 3 days a week?

Data are from 20,750 survey responses collected from September 2020 to February 2021 by Inc-Query and QuestionPro. We asked a similar question in earlier and subsequent waves, but we focus on the above waves, which use identical questions and response options. We re-weight raw responses to match the share of working-age respondents in the 2010-2019 CPS by {age x sex x education x earnings} cells.

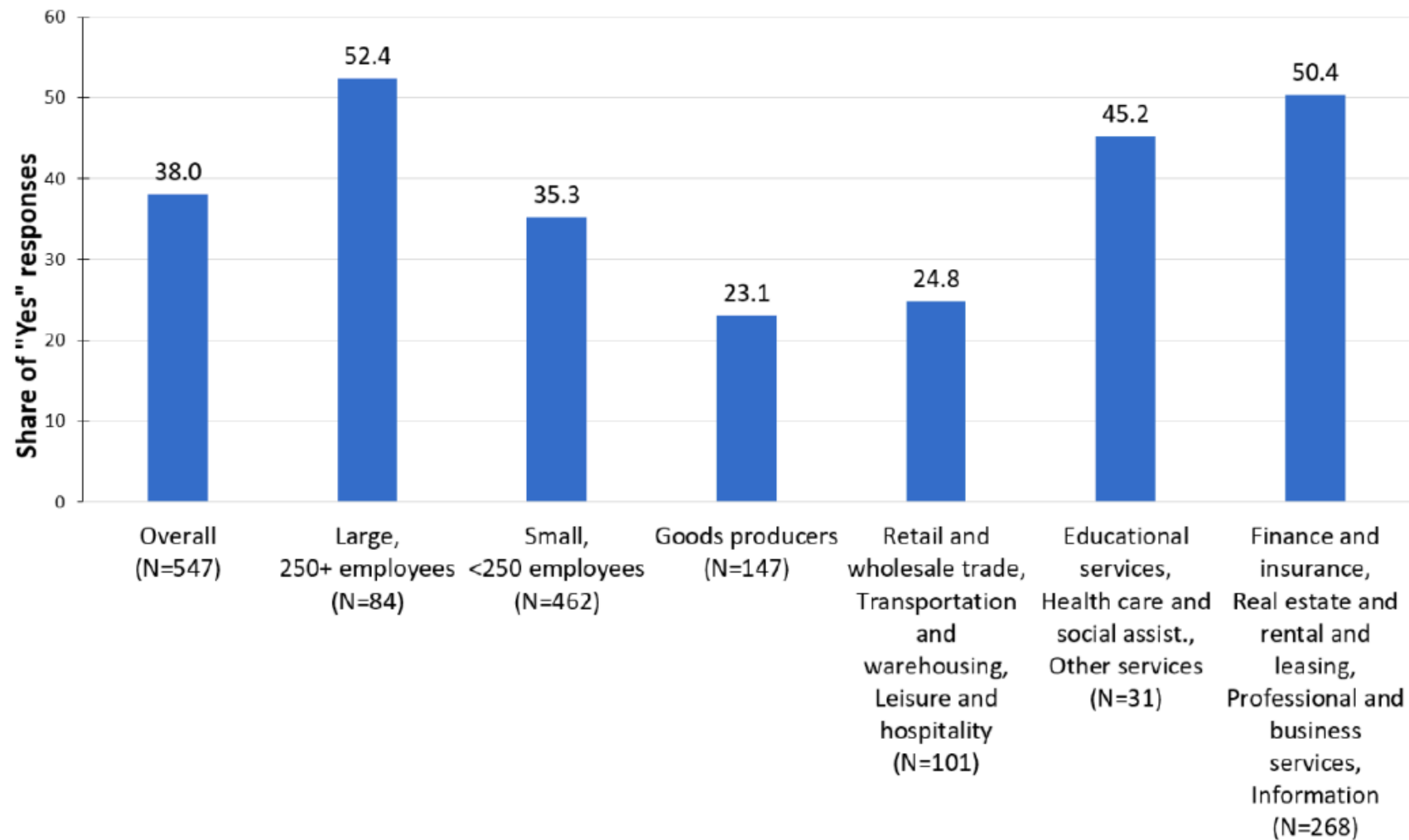
# Reduced Wage-Growth Pressures Along the Transition Path

- The big shift to WFH raised the amenity value of many jobs.
- The amenity-value gains were unforeseen.
- Economic reasoning says that employers and workers ultimately share the amenity-value gains associated with the big shift.
- Since workers initially reaped the direct benefits of the shift at pre-determined wages, employer benefits took the form of slower wage growth along the transition path to a new equilibrium with compensation packages that recognize higher remote work levels.
- Search and reallocation frictions: It takes time for workers who highly value WFH to sort into jobs that offer that amenity (and for more firms to offer WFH). Bagga et al. (2023) capture this source of sluggish wage dynamics in “Job Amenity Shocks and Labor Reallocation.”

# Three Different Types of Evidence

- A. Survey of Business Uncertainty (SBU): We ask business executives whether, and how much, expanded WFH moderated wage growth at ***their own firms***. Then we aggregate the responses.
- B. The behavior of U.S. real wages since early 2021 relative to a reasonable baseline.
- C. Changes in the industry structure of real wages.

**Over the past 12 months, has your firm expanded the opportunities to work from home (or other remote location) as a way to keep employees happy and to moderate wage-growth pressures?**



**Source:** Survey of Business Uncertainty conducted by the Federal Reserve Bank of Atlanta, Stanford University, and the University of Chicago Booth School of Business. Using data from the April and May 2022 survey waves.

When a business executive responds “yes” to the previous question, we follow up with:

“What is your best estimate for how much expanded remote-work opportunities have moderated wage-growth pressures at your firm in the past 12 months?”

Response options are 0, 1, 2, ..., 19, 20 % and more than 20%.

We also asked a parallel set of forward-looking questions pertaining to the next 12 months.  
See “Extra Slides.”

# Nominal Wage-Growth Moderation Due to the Rise of Remote Work Over a Two-Year Period Centered in April/May 2022 Percentage Points

We assign a zero value to wage-growth restraint (in the look-back or look-ahead direction) if (a) the executive says "No" to the first question, and if (b) the executive says "Yes" to the first question and responds with 0 to the follow-up question.

64% of sampled firms have a cumulative wage-growth moderation value of 0.

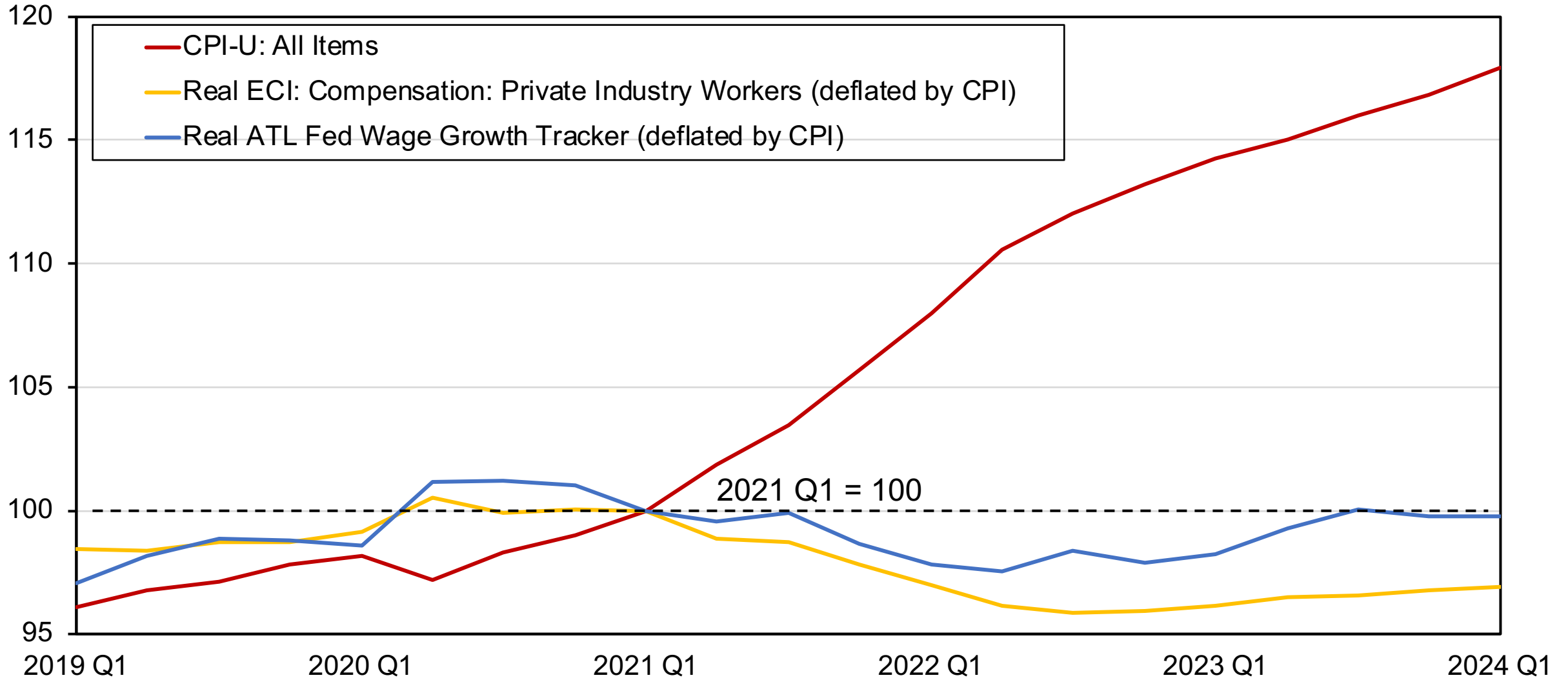
	<b>Mean Cumulative Wage-Growth Moderation Over Two Years</b>	
	<b>Unweighted</b>	<b>Weighted by Firm Size</b>
<b>Overall</b>	<b>2.2</b>	<b>2.0</b>
<b>Small Firms (fewer than 250 employees)</b>	2.2	2.0
<b>Large Firms (250 or more employees)</b>	2.1	2.0
<b>Goods Producers</b>	1.3	1.3
<b>Retail and Wholesale Trade, Transportation and Warehousing, Leisure and Hospitality</b>	1.4	1.8
<b>Education, Healthcare, Social Assistance, Other services</b>	2.7	3.8
<b>FIRE, Professional and Business Services, Information</b>	3.0	2.3



# Remarks about U.S. Real Wage Behavior

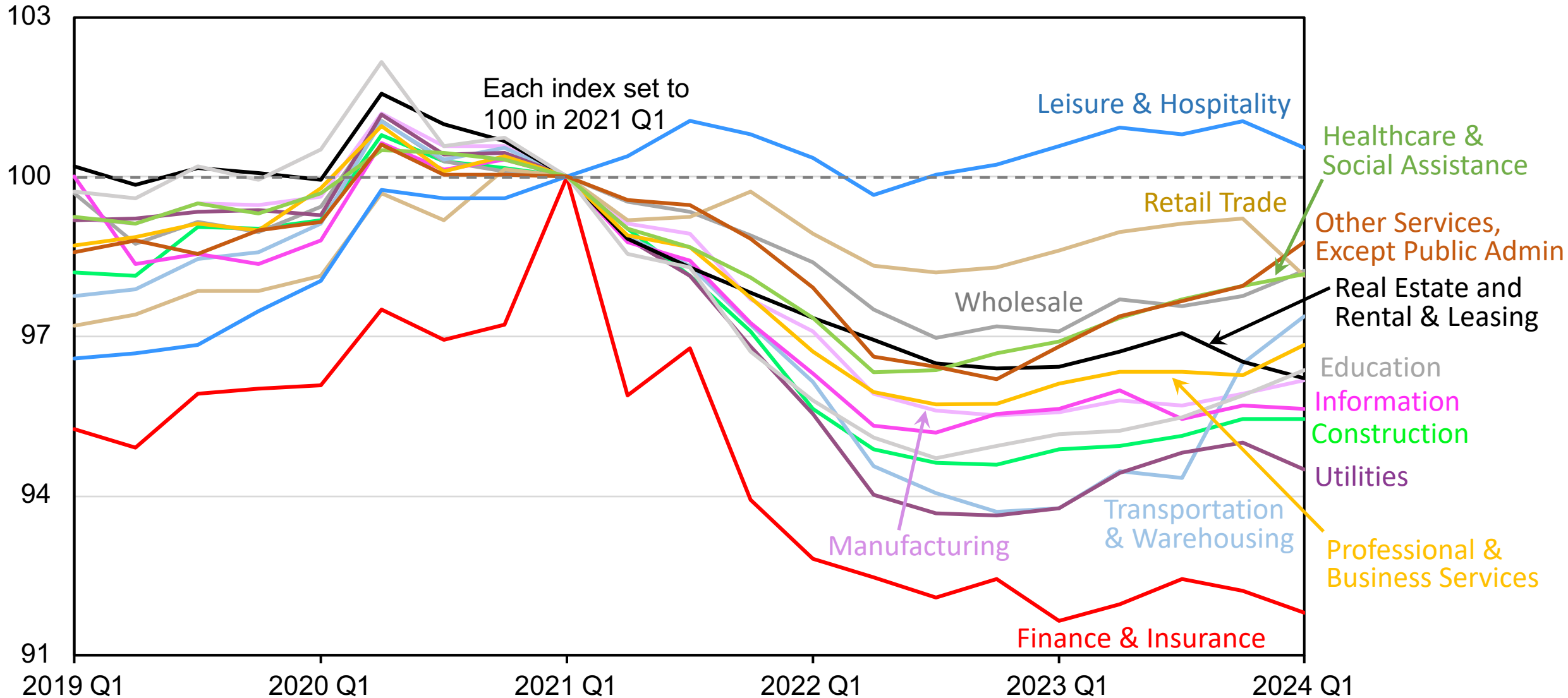
1. Two widely followed U.S. wage indicators:
  - Employer Cost Index (controls for job mix changes over time).
  - Atlanta Fed Wage Tracker (controls for worker mix changes over time).
2. Deflated by the CPI-U, the ECI rose 0.4 ppts per year from 2006 to 2009, and the Wage Tracker rose 1.1. ppts per year.
3. These real wage measures moved pro-cyclically over this period.
4. Given these facts, it's reasonable to expect average real wage gains of at least 1.3 ppts (ECI) and 3.3 ppts (Wage Tracker) from early 2021 to early 2024.
5. Instead the real ECI is down 3.1 ppts from 2021 Q1 to 2024 Q1, and the real Wage Tracker is down 0.2 ppts over this period.

# U.S. Real Wage Behavior and the CPI, 2019 Q1 to 2024 Q1



Sources: Bureau of Labor Statistics, Atlanta Fed, and author's calculations.

# ECI By Industry, Deflated by the CPI, 2019 Q1 through to 2024 Q1



Sources: Bureau of Labor Statistics, and authors' calculations.

# Summarizing the Wage Evidence

1. The amenity-value gains associated with the big shift to WFH lowered average wage growth by an estimated 2.0 percentage points over the 24-month period centered on April/May 2022, according to survey data on business executives.
2. Average real wages are down at least 3.5 to 4.4 ppts from 2021Q1 to 2024Q1 relative to what's expected from history.
3. Industry-level wage-growth differences over this period are broadly in line with the amenity-value story according to both the SBU (survey of business executives) and the ECI.

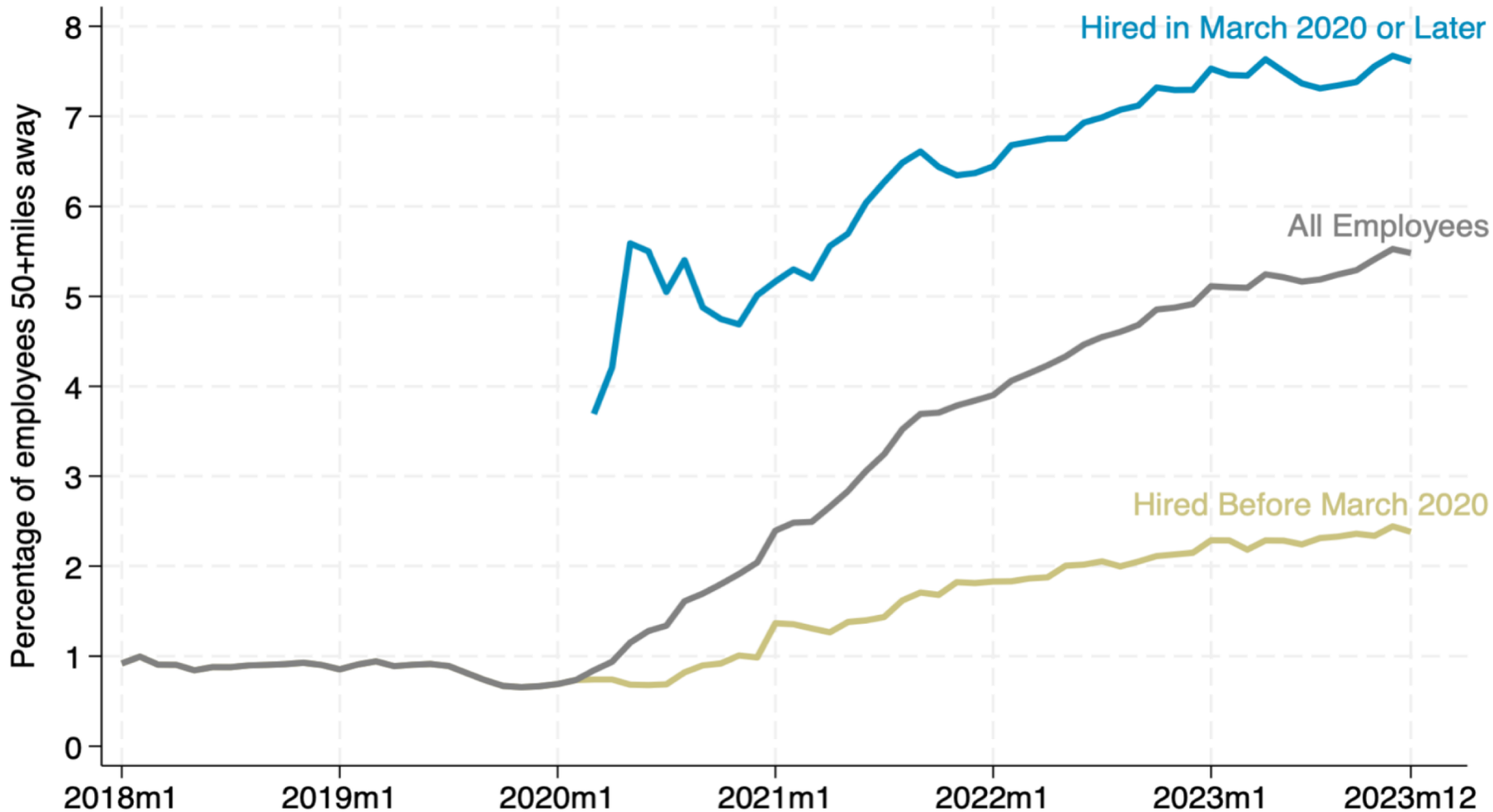
# The Implications for Inflationary Pressures

1. The amenity-value gains associated with the big shift to WFH lowered average wage growth by an estimated 2.0 percentage points over the 24-month period centered on April/May 2024..
2. This estimate neglects wage-growth restraint due to the sharing of amenity-value gains outside the 24-month window.
3. Like the reversal of LF withdrawal, this source of wage-growth restraint came at a fortunate time for the Fed.
4. I think this source of wage-growth restraint has largely played out by now – but not entirely, as discussed next.

# Two Ongoing Developments

# Workers Are Becoming Less Tied to Employer Locations

Percentage of Employees Living More than 50 Miles from Employer Location



**Notes:** The sample contains employees of 5,793 firms in a balanced panel of mostly smaller and mid-sized firms. Employee-level data are reweighted to match the CPS distribution by (age bin) X sex X major industry. Authors' calculations using proprietary data from Gusto, a payroll processing and HR services firm.

# The Big Shift to WFH Brings New Job Options That Will Potentially Expand Labor Supply

WFH expands employment opportunities for

1. Persons with physical impairments that inhibit commuting or that require special accommodations.
2. Persons with cognitive and psychological conditions that deter face-to-face encounters
3. Persons who live in remote and job-scarce areas that make it hard to otherwise deploy their skills in attractive jobs
4. Dual-career couples facing joint-location constraints
5. Persons with care-giving responsibilities at (or near) home

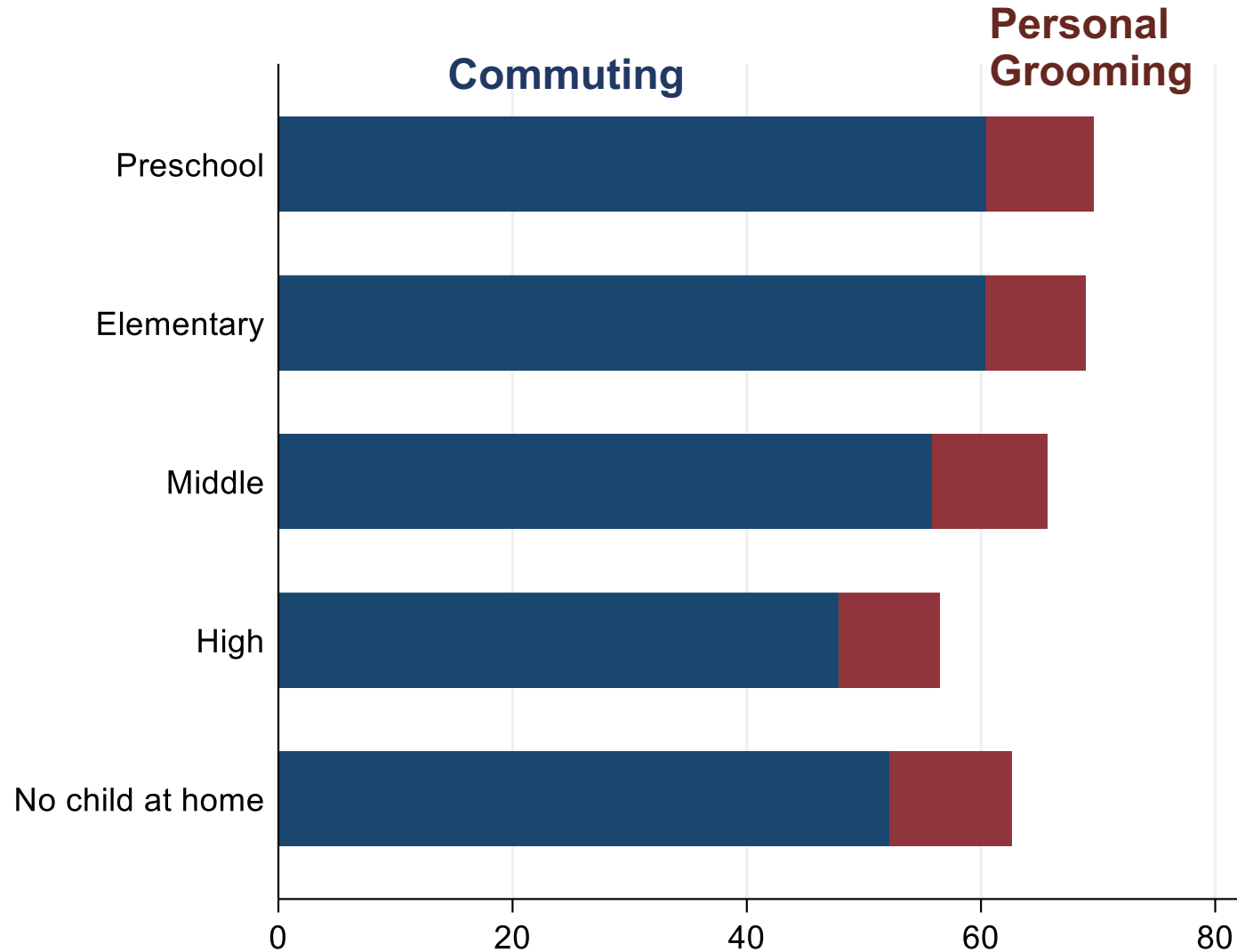


# Implications for Inflationary Pressures

1. The relaxation of locational constraints afforded by the shift to WFH can simultaneously raise real worker wages and lower real product wages. The downward pressure on real product wages moderates inflationary pressures.
2. Insofar as the the shift to WFH expands LF participation and LS, that will also help moderate inflationary pressures.

# Extra Slides

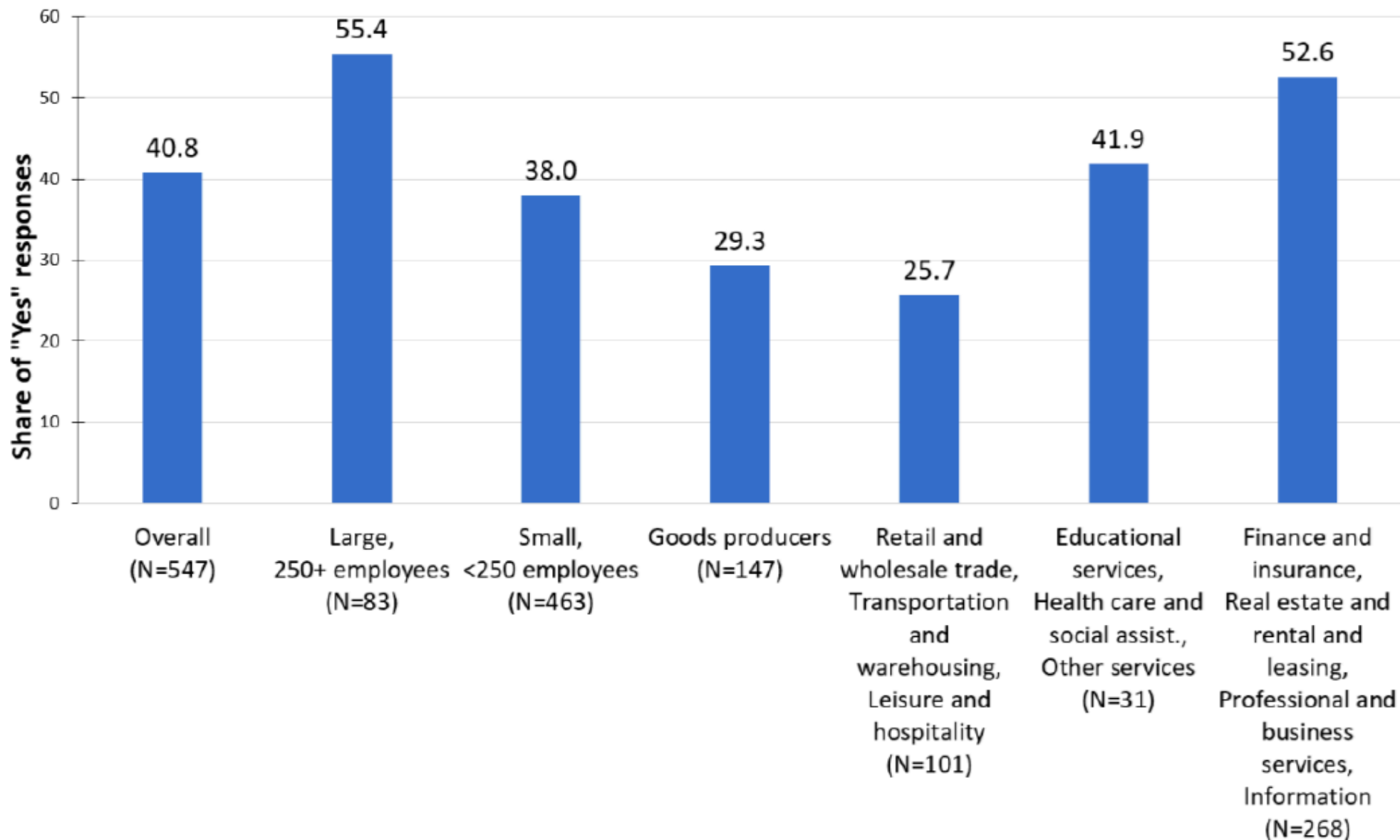
# Average Daily Time Savings When Working from home, Breakdown by Schooling Age of Youngest Child



When employees work from home, they save an average **65 minutes per day** by not commuting and taking less time to get ready for work. The chart shows time saved by age of youngest child.

**Source:** Data from 8,313 SWAA respondents who can work from home. Reweighted to match the US population. See <https://wfhresearch.com/>.

## Over the next 12 months, will your firm let employees work from home (or other remote location) at least one day per week to restrain wage-growth pressures?



When a business executive responds “yes” to the previous question, we follow up with:

“What is your best estimate for how much your firm can restrain wage-growth pressures in the next 12 months by letting employees work remotely part of the week?”

Response options are 0, 1, 2, ..., 19, 20 % and more than 20%.

# Recent U.S. Episodes with Falling Real Wages

## A. Using the Atlanta Fed Wage Tracker, Deflated by the CPI-U

Economic Episode	Percentage Real Wage Change		Unemployment Rate, Percent		Ratio of Vacancies to Unemployed Persons		Mean Vacancy Duration, Days	
	Annualized	Cumulative	Episode Average	Prior 12 Months	Episode Average	Prior 12 Months	Episode Average	Prior 12 Months
August 2007 to September 2008	-1.9	-1.7	5.1	4.5	0.56	0.68	22.4	22.9
August 2009 to December 2009	-2.8	-1.2	9.8	7.9	0.16	0.25	16.1	18.3
August 2010 to February 2012	-1.6	-2.6	9.0	9.8	0.24	0.18	20.4	17.2
<b>April 2021 to October 2022</b>	<b>-2.2</b>	<b>-4.5</b>	<b>4.6</b>	<b>7.8</b>	<b>1.50</b>	<b>0.66</b>	<b>42.2</b>	<b>27.7</b>

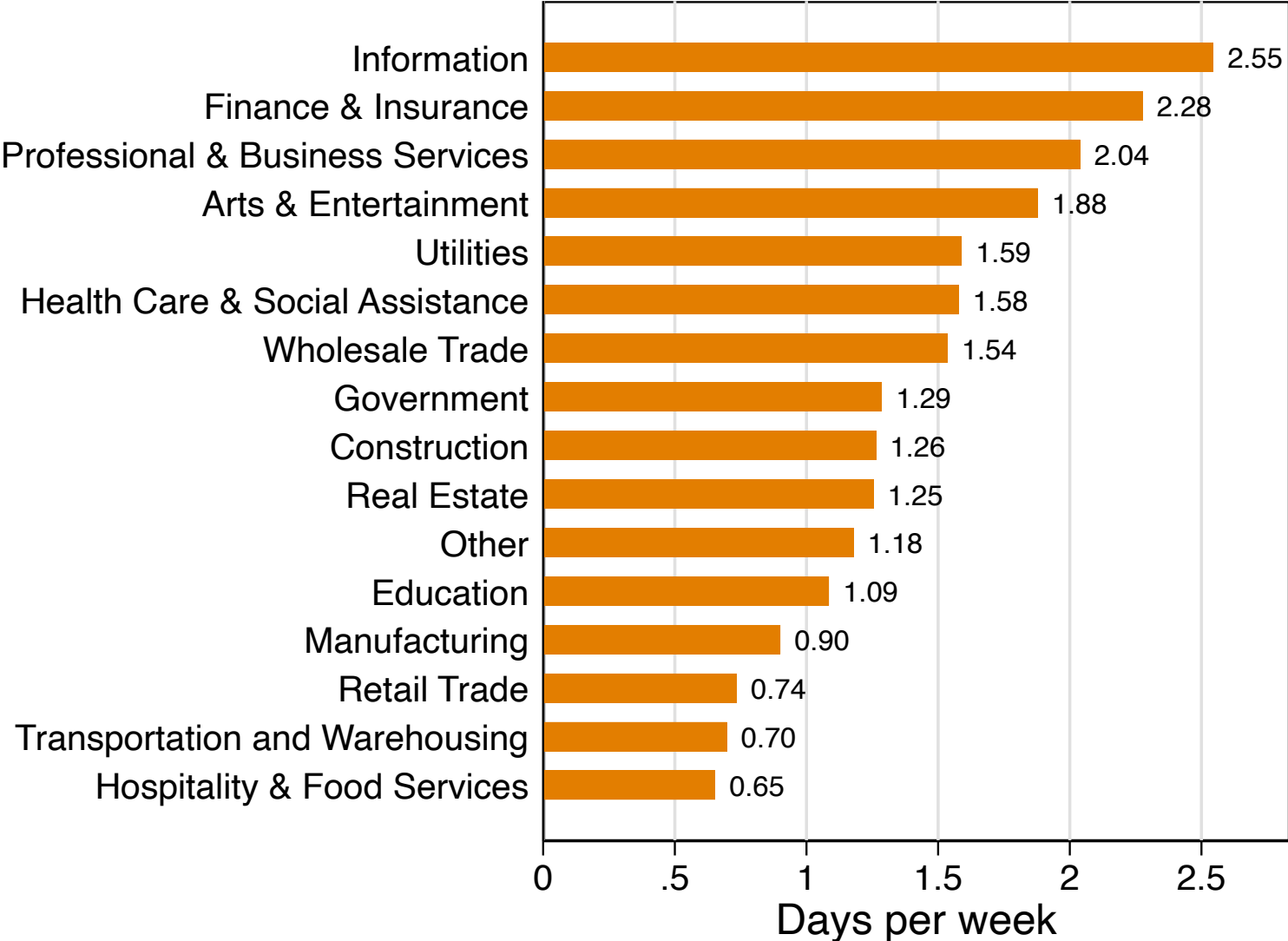
## B. Using the Employer Cost Index of Total Compensation for Private Sector Workers, Deflated by the CPI-U

Economic Episode	Percentage Real Wage Change		Unemployment Rate, Percent		Ratio of Vacancies to Unemployed Persons		Mean Vacancy Duration, Days	
	Annualized	Cumulative	Episode Average	Prior 4 Quarters	Episode Average	Prior 4 Quarters	Episode Average	Prior 4 Quarters
Q4 2007 to Q3 2008	-2.3	-2.3	5.3	4.5	0.50	0.69	22.1	22.8
Q2 2009 to Q4 2009	-1.5	-1.2	9.6	8.5	0.17	0.21	16.4	17.6
Q4 2010 to Q1 2012	-1.0	-1.5	8.9	9.7	0.26	0.18	20.6	17.8
<b>Q1 2021 to Q4 2022</b>	<b>-2.8</b>	<b>-4.1</b>	<b>4.4</b>	<b>8.7</b>	<b>1.62</b>	<b>0.56</b>	<b>43.8</b>	<b>28.5</b>

Source: “The Shift to Remote Work Lessens Wage-Growth Pressures” by Barrero, Bloom, Davis, Meyer and Mihaylov, NBER WP 30197. Revision in progress.

# Work from Home Is Most Prevalent in Information, Finance & Insurance, and Professional & Business Services, 2023

### WFH Days Per Week, Employees Who Work 5+ Days Per Week



### Responses to the question:

- For each day last week, did you **work a full day (6 or more hours)**, and if so **where?**

**Notes:** The chart reports mean values for the number of full days worked from home by employees, 20-64 years of age, who worked five or more days in the survey reference week, based on data from the January through June 2023 waves of the U.S. Survey of Working Arrangements and Attitudes (Barrero et al., 2023b). Due to small samples, we omit values for Mining and Agriculture. We drop respondents who fail our attention-check questions. N = 22,341