

*Comments on*  
**“Big-Tech, Financial Intermediation,  
and the Macroeconomy”**  
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***These remarks solely reflect the views of the discussant  
and should not be interpreted as reflecting the views of  
any other person or institution.***

# Overview

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- This paper provides **innovative** analysis on a **complex, timely,** and **policy-relevant** topic
  - the benefits of e-commerce
  - frictions in credit markets
  - transmission of monetary policy
  - amplification/diminution of financial stress
- **Aim of my comments**
  - provide a bit of context (focusing on USA)
  - flag questions about heterogeneous agents
  - encourage the authors to continue pursuing this research agenda!

# Sources of Heterogeneity

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## ■ Firm Heterogeneity

- sources of equity financing (self, partners, venture capital, IPO, private equity)
- sources of debt financing (bank loans, commercial paper, bond issuance)

## ■ Worker Heterogeneity

- hourly wage vs. salary
- indexation to inflation: *ex ante* or *ex post*?

## ■ Public sector backstops

- access to Fed's discount window
- insured vs. uninsured deposits

# Top U.S. Financial Firms by Market Cap

| Corporation     | Market Cap    | Net Income    | Employees   |
|-----------------|---------------|---------------|-------------|
|                 | (\$ billions) | (\$ billions) | (thousands) |
| JPMorgan Chase  | 675           | 52            | 316         |
| Visa            | 593           | 19            | 27          |
| Mastercard      | 487           | 12            | 30          |
| Bank of America | 354           | 22            | 213         |
| Wells Fargo     | 242           | 17            | 238         |
| Blackstone      | 221           | 2             | 4           |
| Morgan Stanley  | 214           | 10            | 82          |
| Goldman Sachs   | 189           | 11            | 45          |

# Top US Firms by Market Cap

| Corporation               | Market Cap            | Net Income           | Employees          |
|---------------------------|-----------------------|----------------------|--------------------|
|                           | <i>(\$ trillions)</i> | <i>(\$ billions)</i> | <i>(thousands)</i> |
| <i>NVIDIA</i>             | 3.6                   | 53                   | 26                 |
| Apple                     | 3.4                   | 94                   | 161                |
| Microsoft                 | 3.1                   | 91                   | 228                |
| Alphabet (Google)         | 2.2                   | 94                   | 180                |
| Amazon                    | 2.2                   | 50                   | 1,525              |
| Meta                      | 1.5                   | 56                   | 66                 |
| <i>Tesla</i>              | 1.1                   | 13                   | 140                |
| <i>Berkshire Hathaway</i> | 1.0                   | 107                  | 397                |

# The Macroeconomic Footprint of the Five Big-Tech Firms

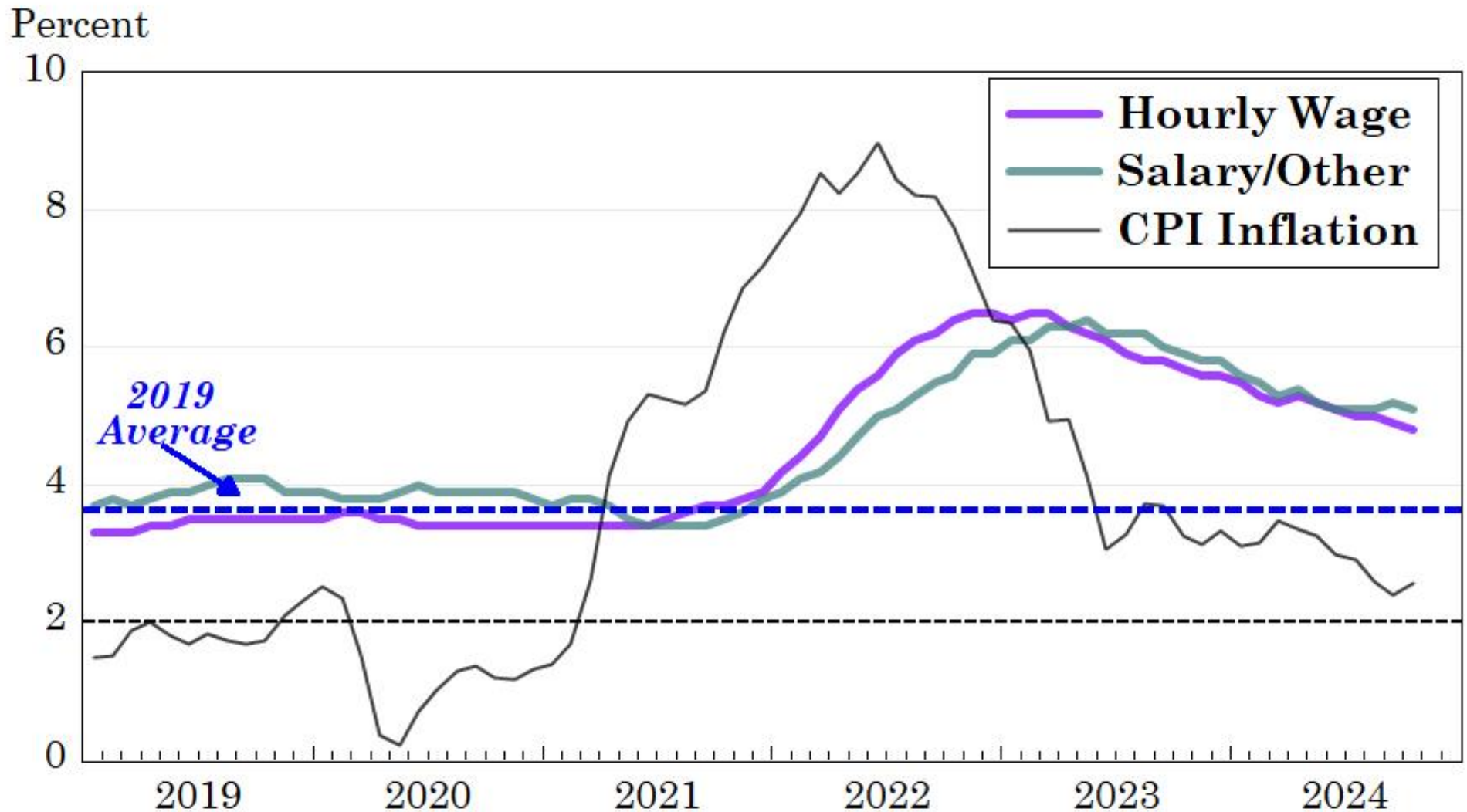
|            | Amount          | Percent of U.S. Total |
|------------|-----------------|-----------------------|
| Market Cap | \$12.3 trillion | 22.5%                 |
| Net Income | \$384 billion   | 1.3%                  |
| Employment | 2.2 million     | 1.3%                  |

# Heterogeneity in U.S. Firm Size

| <b>Firm Size</b><br><i>(# employees)</i> | <b>Firms</b><br><i>(thousands)</i> | <b>Establishments</b><br><i>(thousands)</i> | <b>Employment</b> |                |
|--|------------------------------------|---|-------------------|----------------|
|  |                                    |   | <i>millions</i>   | <i>percent</i> |
| <i>Self-Employed</i>                     | N/A                                | N/A   | 15                | 11             |
| <i>1 to 499</i>                          | 6,274                              | 6,783                                       | 59                | 41             |
| <i>500 to 9,999</i>                      | 19                                 | 61  | 30                | 21             |
| <i>10,000+</i>                           | 1.1                                | 755   | 39                | 27             |

*Sources: Statistics of U.S. Businesses as of 2021 (U.S. Census Bureau),  
Bureau of Labor Statistics (self-employment).*

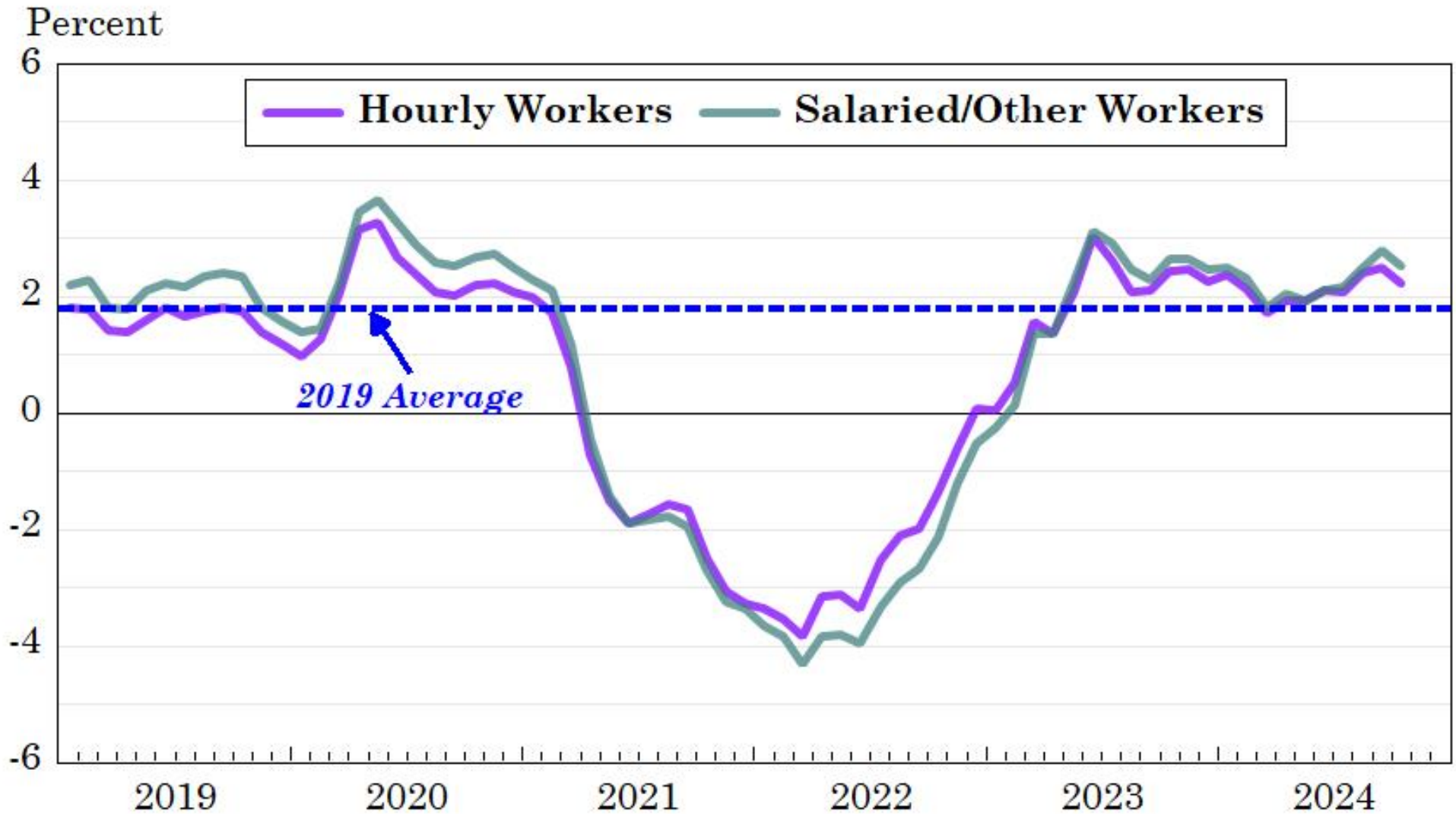
# Nominal Wage Growth



*Source: Atlanta Fed Wage Tracker*

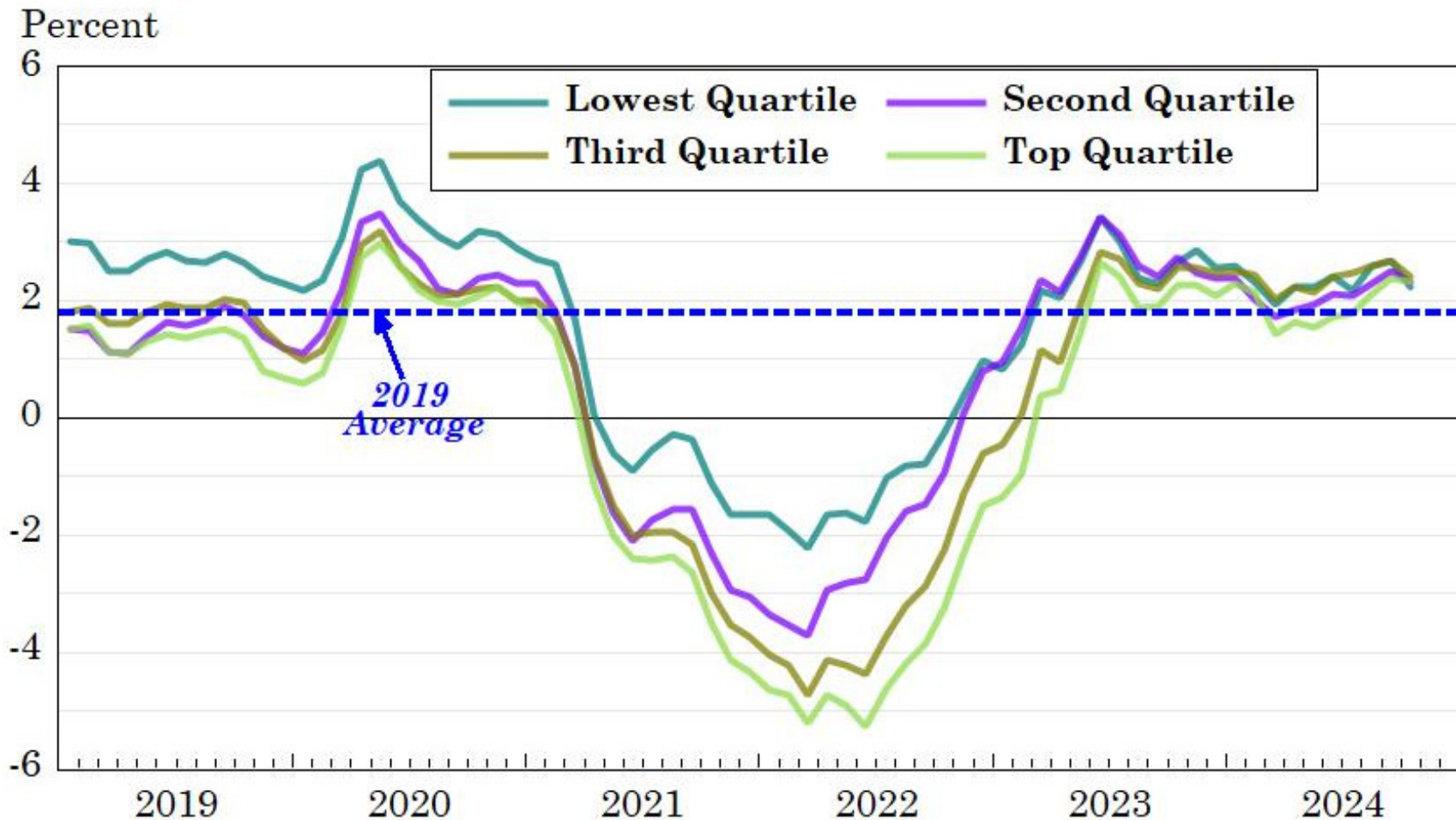


# Real Wage Growth



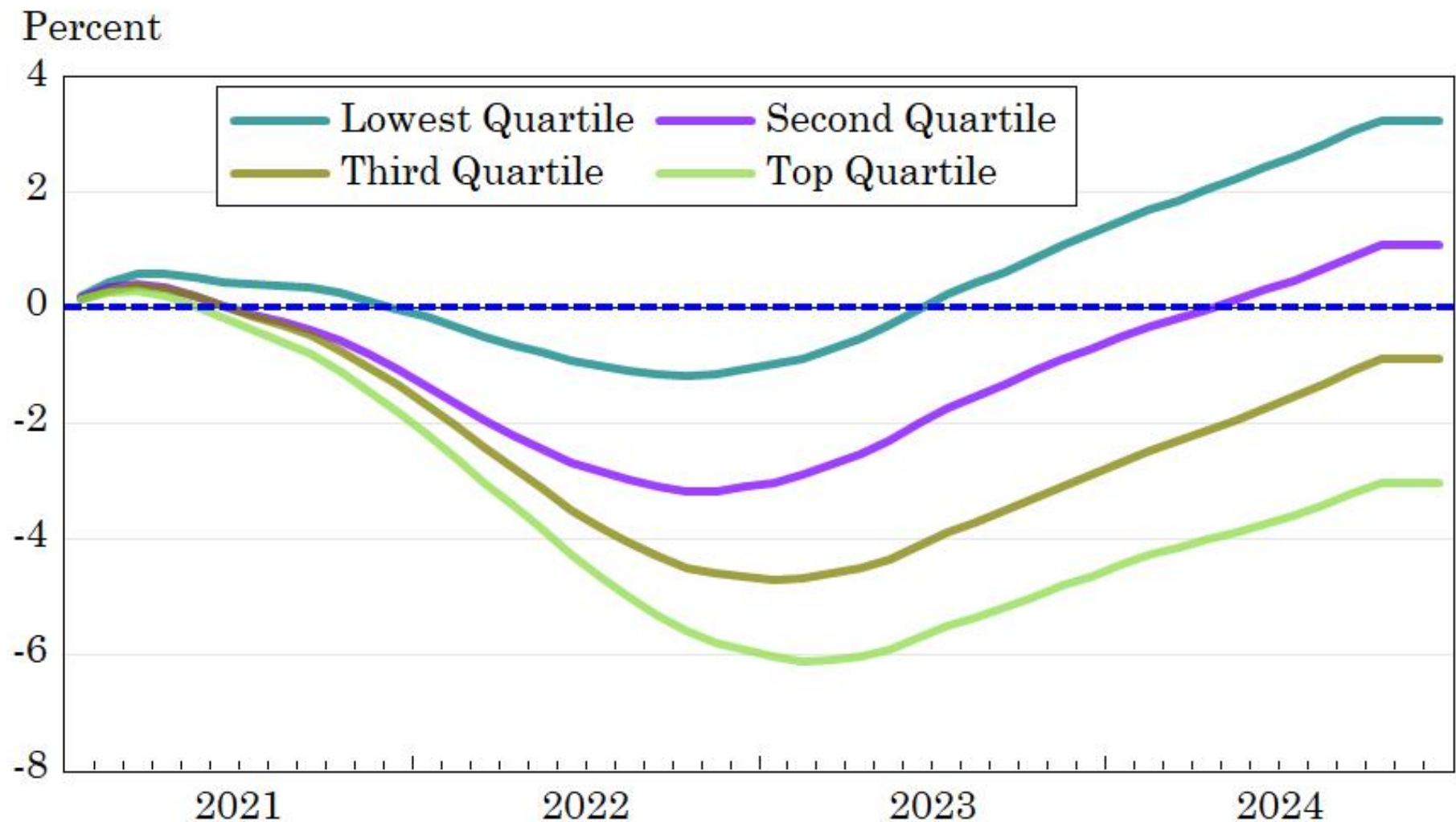
*Source: Atlanta Fed Wage Tracker*

# Real Wage Growth by Quintile



*Source: Atlanta Fed Wage Tracker*

# Cumulative Change in Real Wages Since 2021



*Source: Atlanta Fed Wage Tracker*

# Conclusions

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- These issues are **crucial, complex,** and **highly relevant** for policymakers.
- **Innovative** macroeconomic models are urgently needed to address these issues.
- There are **huge benefits** to fostering this type of research at central bank institutions (*such as the Boston Fed*) and international organizations (*such as the BIS and IMF*).