

# Reassessing Economic Constraints: Maximum Employment or Maximum Hours?

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## Introduction

- Main labor market indicators for central banks' short-run and long-run projections:
  - Labor force participation rate and unemployment rate
  - Main indicators focus on “counting people”: employment, unemployment, population
- Key input into (potential) output:

$$\text{Hours per person} = \underbrace{\frac{\text{Employment}}{\text{Population}}}_{\substack{\text{Employment rate} \\ \text{(extensive margin)}}} \times \underbrace{\frac{\text{Total hours}}{\text{Employment}}}_{\substack{\text{Hours per worker} \\ \text{(intensive margin)}}$$

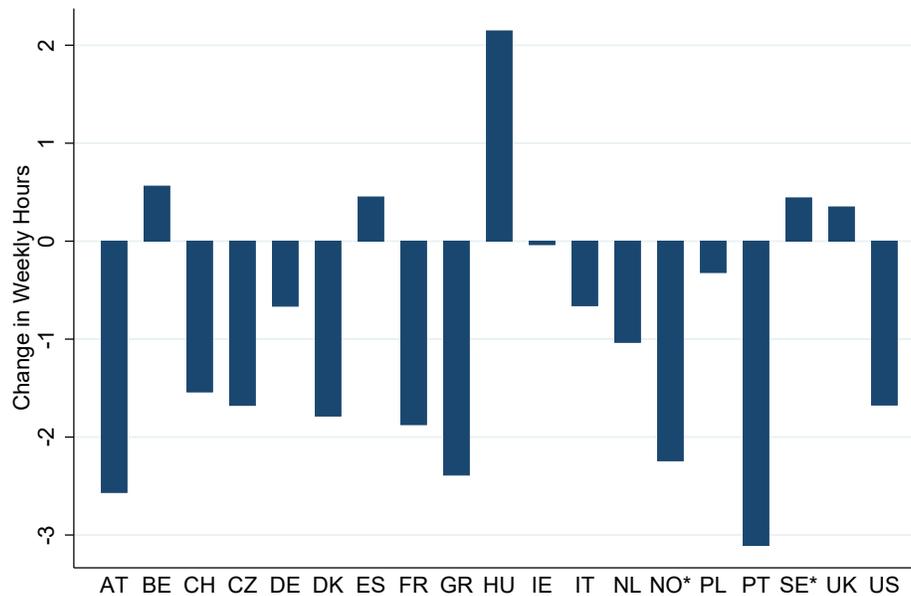
- Our main message for long-run projections:
  - Hours per worker deserve as much attention as employment.
  - Ignoring hours per worker trends leads to overestimation of potential output.
  - Structural shifts in labor markets likely imply further decreases in hours per worker.

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\*The views expressed in this paper are those of the authors and do not necessarily reflect the views of the institutions that they are affiliated with, in particular the Federal Reserve Bank of St. Louis and the Federal Reserve System.

## Decreasing Trends in Hours per Person across Countries

Figure 1: Changes in Hours per Person across Countries between 1999 and 2019

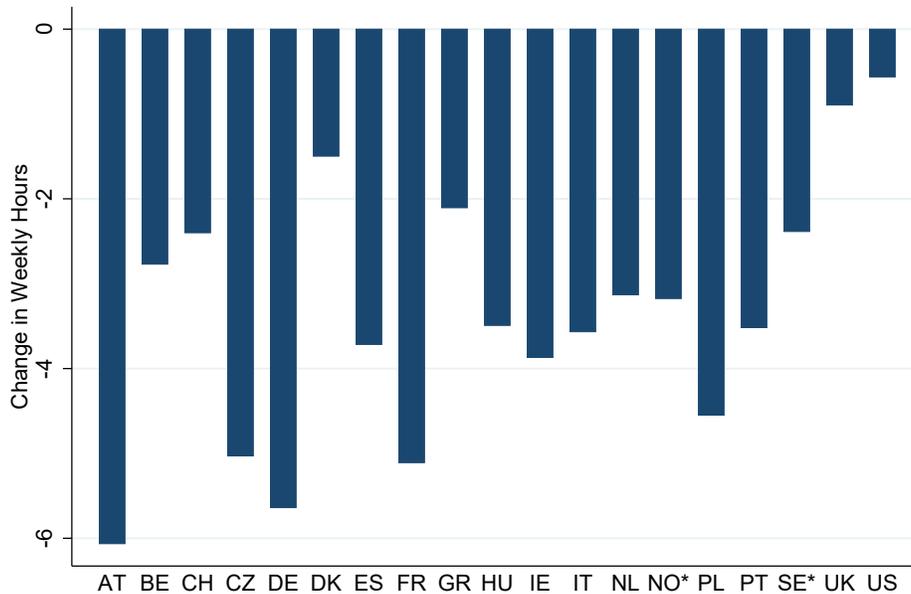


*Note:* Figure plots changes in weekly hours per person (ages 15 and above) between 1999 and 2019. For both years, we use the average with the two previous years, respectively. \*For Norway and Sweden, individuals ages 75 and older are excluded. *Source:* EULFS and CPS.

- Over the two decades prior to the pandemic, hours per person ...
  - decreased in 14 out of 19 sample countries.
  - decreased on average across all countries by 0.9 hours, or 4.7% (0.24% per year).
- Hours per person are the product of the extensive and the intensive margins.
  - Next, we decompose changes in hours per person into these two margins.

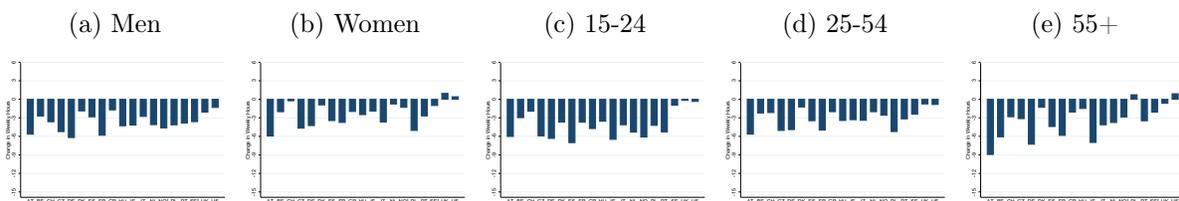
## Trends Are Driven by Decreases in Hours per Worker

Figure 2: Changes in Hours per Worker across Countries between 1999 and 2019



*Note:* Figure plots changes in weekly hours per worker (ages 15 and above) between 1999 and 2019. For both years, we use the average with the two previous years, respectively. \*For Norway and Sweden, individuals ages 75 and older are excluded. *Source:* EULFS and CPS.

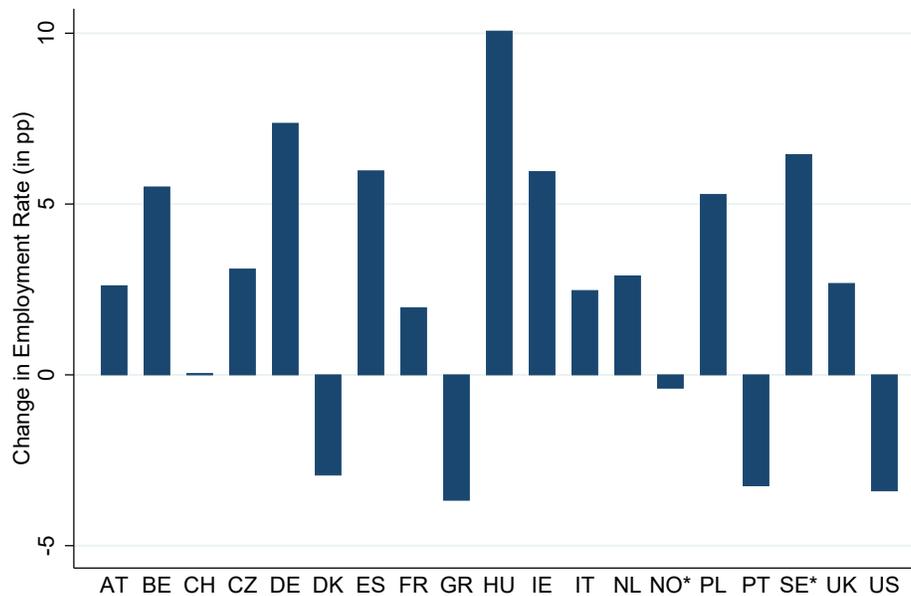
Figure 3: Changes in Hours per Worker across Countries for Different Groups between 1999 and 2019



- Over the two decades prior to the pandemic, hours per worker ...
  - decreased in all 19 sample countries.
  - decreased on average across all countries by 3.4 hours, or 9.2% (0.48% per year).
- Decrease happened uniformly ...
  - for men and women and across all age groups.
  - in agriculture, manufacturing, and services (not shown here).

## Employment Rates Mostly Increasing Despite Population Aging

Figure 4: Changes in Employment Rates across Countries between 1999 and 2019

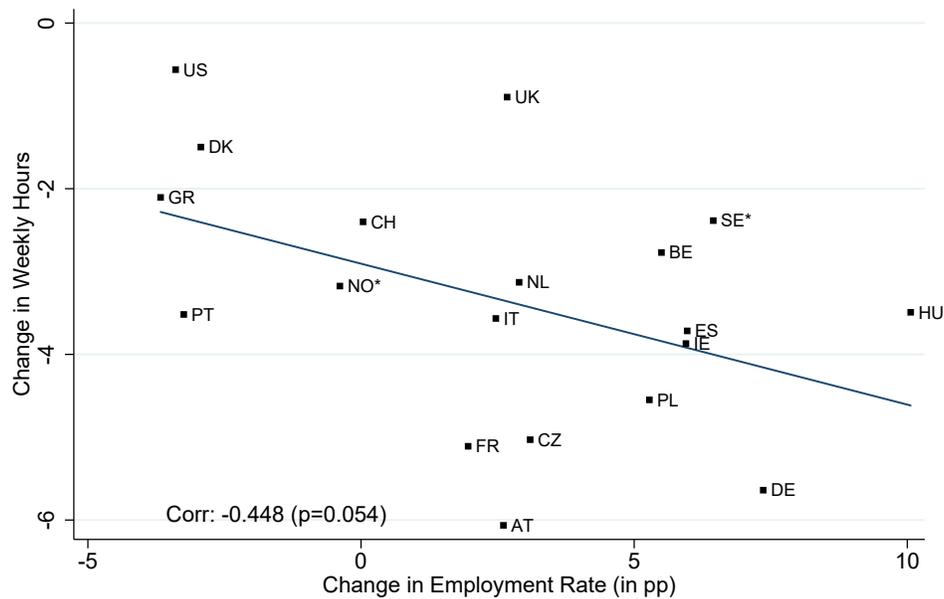


*Note:* Figure plots changes in employment rates (ages 15 and above) between 1999 and 2019. For both years, we use the average with the two previous years, respectively. \*For Norway and Sweden, individuals ages 75 and older are excluded. *Source:* EULFS and CPS.

- Over the two decades prior to the pandemic, employment rates ...
  - increased in 14 out of 19 sample countries.
  - increased on average across all countries by 2.5pp, or 4.9% (0.24% per year).
- Standard growth accounting:
  - Increases in employment rate alone *increased* output growth by 0.16pp per year.
  - Total changes in hours per person *decreased* output growth by 0.16pp per year.
  - ⇒ Ignoring changes in hours per worker *overstates* output growth by 0.32pp per year.
- Employment rate changes exhibit heterogeneity across and within countries:
  - Population aging *depresses* employment rates; increases in education *raise* them.
  - Absent population aging and increases in education, employment rates would have increased in all countries but Greece and Portugal.

## Negative Correlation between Changes in Hours per Worker and Changes in Employment Rates

Figure 5: Changes in Hours per Worker vs. Changes in Employment Rates between 1999 and 2019



*Note:* Figure plots changes in hours per worker against changes in employment rates between 1999 and 2019. For both years, we use the average with the two previous years, respectively. \*For Norway and Sweden, individuals ages 75 and older are excluded. *Source:* EULFS and CPS.

- Statistically significant negative correlation between changes in hours per worker and changes in employment rates:
    - Countries w/ large *increases* in employment have large *decreases* in hours per worker.
- ⇒ Increasing employment does not necessarily imply increasing total hours.

## Stylized Model with Decreasing Fixed Costs of Working Can Generate Movement of Margins in Opposite Directions

### Challenge

- Standard theories explain decreasing hours per person ...
  - via increasing taxes and transfers (taxes and transfers  $\uparrow$ , hours  $\downarrow$ ).
  - via dominating income effect (income  $\uparrow$ , hours  $\downarrow$ ). $\Rightarrow$  Each channel moves both margins in the *same* direction.  $\Rightarrow$  At odds with the data.
- Additional mechanism needed to move both margins in *opposite* directions.

### Proposed mechanism: Decreasing fixed costs of working

- Draws more individuals with higher disutility of working into employment.
- These individuals optimally choose lower hours worked.

### Suggestive evidence for mechanism

- Mothers of young children, women, older individuals likely have high disutility of working: They work(ed) the least hours and had the largest increases in employment rates.
- Decreasing fixed costs could capture effects working through supply and demand sides:
  - Job characteristics
  - Social norms
  - Government policies

### Quantification (Bick, Fuchs-Schündeln, Lagakos, and Tsujiyama, 2022)

- Estimated model with increasing taxes/transfers, dominating income effect, and decreasing fixed costs of working
- Extrapolating into the future, model predicts flat hours per person over next 50 years:
  - Employment rates increase and hours per worker decrease.
  - Both changes roughly offset each other.

## Survey Evidence from June 2022 Suggests Further Decreases in Fixed Costs of Working

### Survey of Work Costs and Flexibility (SWCF)

- Fielded in June 2022
- Representative sample for the US, with about 7,000 observations
- Contains basic CPS questions plus additional questions

### Key Findings

- Work from home (WFH):
  - Share of workdays WFH increased from 14% before pandemic to 25% in June 2022.
  - Increase in WFH is persistent, not transitory:  
Expected share of workdays WFH for June 2023 remains elevated at 21%.
- WFH and lower fixed costs of working:
  - Average weekly commuting time per worker decreased by 44 minutes, or 17%.
  - More multi-tasking of work and personal activities among WFH workers.
  - Share who could move anywhere in US and keep job doubled (11% vs. 5%).
- Work hours flexibility:
  - Share with flexible work hours increased by 9pp.
  - Flexible work hours more prevalent among workers with WFH option (74% vs. 45%).

## Summary

- Recent trends in aggregate labor supply were dominated by trends in hours per worker. Over the two decades prior to the COVID-19 pandemic ...
  - Hours per person *decreased* on average by 4.7%.
    - \* Hours per worker *decreased* on average by 9.2%.
    - \* Employment rates *increased* on average by 4.9%.
- Decrease in hours per worker is economically meaningful. Standard growth accounting:
  - Decrease in hours per worker depressed output growth by 0.32pp per year.
- Changes in hours per worker and employment rates are negatively correlated:
  - Countries w/ large *increases* in employment have large *decreases* in hours per worker.
  - Standard theories to explain decreasing hours per person cannot explain this fact.
- Decreasing fixed costs of working generate opposing trends in two margins of labor supply:
  - More individuals with higher disutility of working are drawn into employment.
  - These individuals optimally choose lower hours worked.
- Persistent effect of the pandemic on fixed costs of working:
  - Large and persistent increase in work from home.
  - Work from home lowers fixed costs of working.
  - Work hours flexibility also increased.