

“TECHNOLOGY, PRODUCTIVITY, AND  
THE LABOR MARKET: IMPLICATIONS  
FOR LONG-RUN GROWTH”

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KEA-KAEA Conference

June 15, 2018

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# SLOWDOWN OF POTENTIAL OUTPUT

- Measurement (of Potential Output)
- Why?
  - Labor Market: Demographics
  - Technology
    - Labor Saving
    - Transition (Learning)

# MEASUREMENT

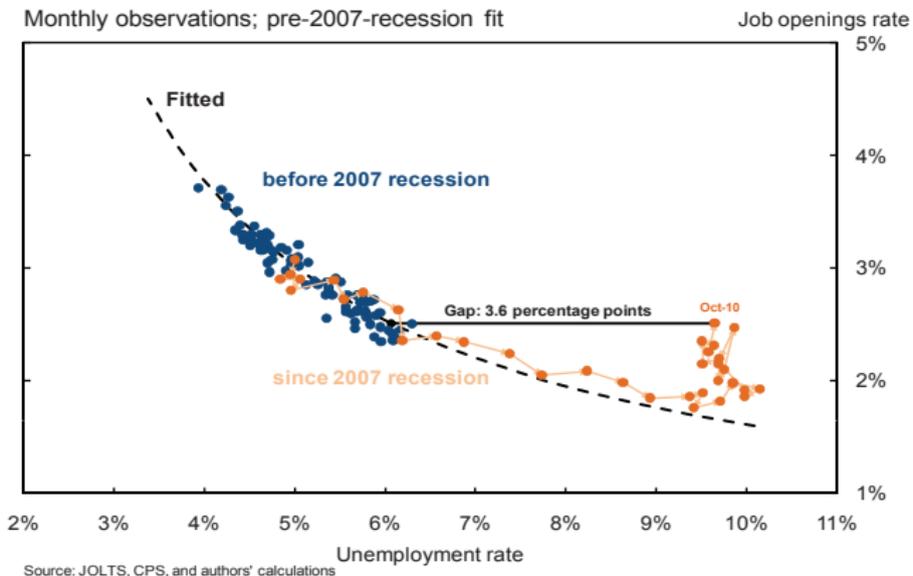
Neither **Okun's Law** nor **Phillips Curve** are **structural** relationships.  $\Rightarrow$  **Deviation** from the past pattern

- Jobless Recovery in the last 3 recession
- Shifts in Beveridge Curve

$\Rightarrow$  Need caution.

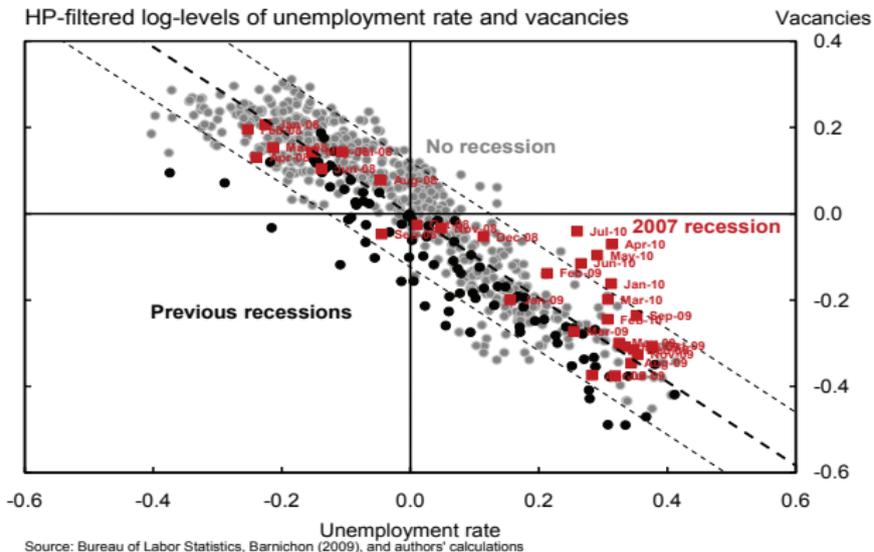
- Projection based on **past** data may not hold for **future**

## Beveridge Curve: 2000-2010



Source: Elsby et al. (2012)

## Beveridge Curve: 1951-2010

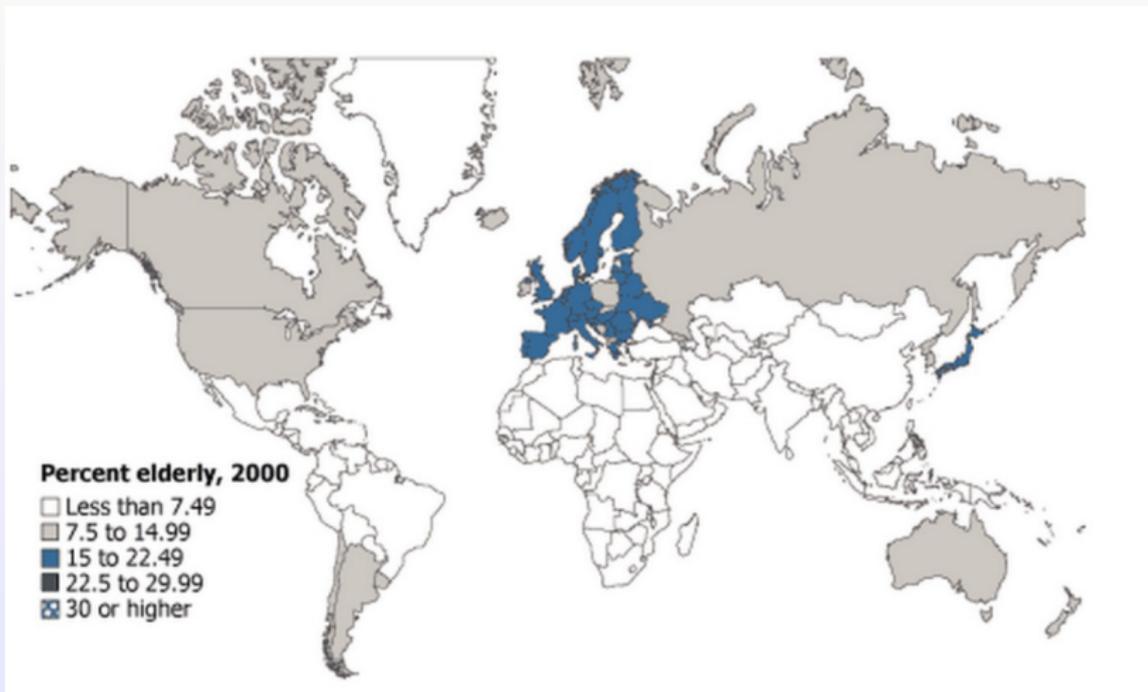


Source: Elsby et al. (2012)

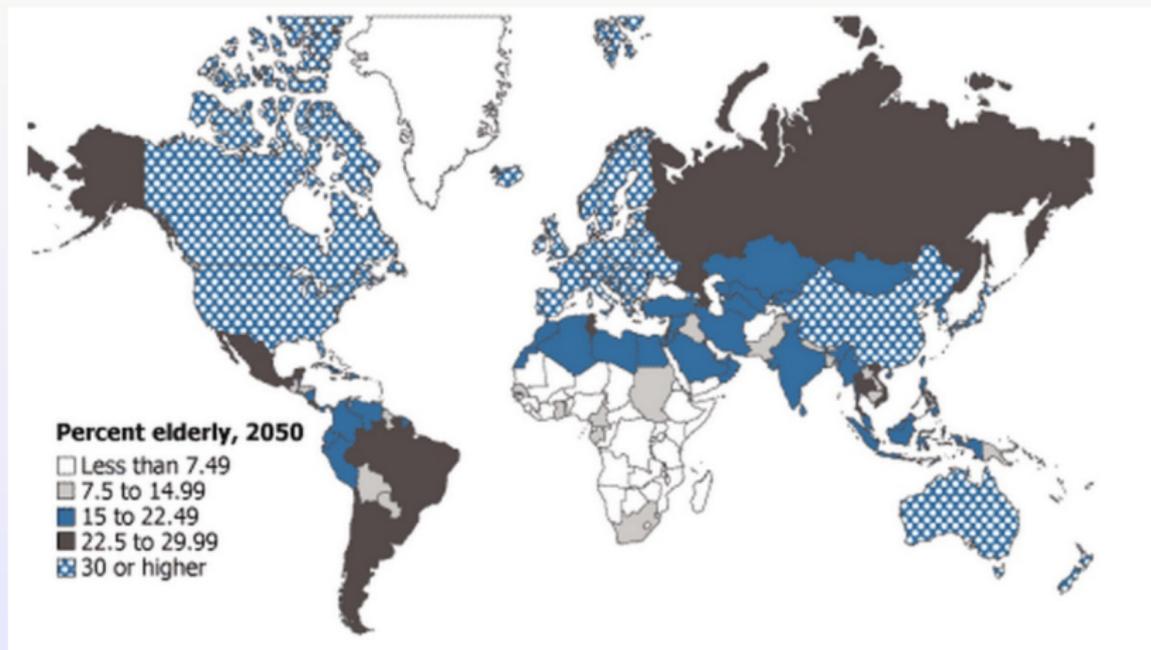
# WHY? (SOURCES OF SLOWDOWN)

- Labor Market: Demographics
- Technology: Not yet materialized

# WORLD MAP OF ELDERLY: YEAR 2000



# WORLD MAP OF ELDERLY: YEAR 2050



# POPULATION AGING

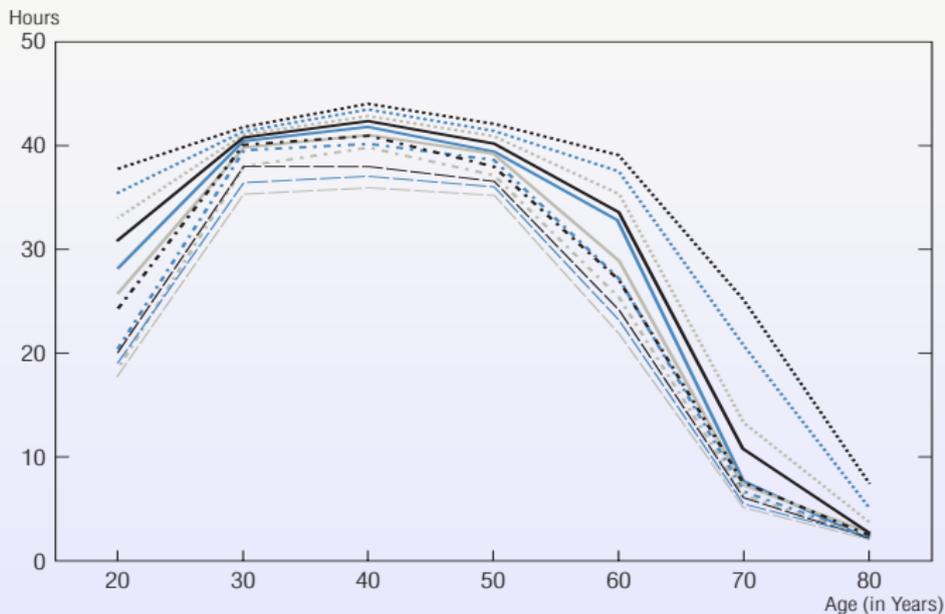
- Population aging is everywhere.
- May cause decline in economic growth.
- Lack of labor force
- Fiscal burden (High dependency ratio)

# ECONOMY DOES RESPOND TO AGING

- Extending (mandatory) retirement age
- Female labor force participation
- Immigration

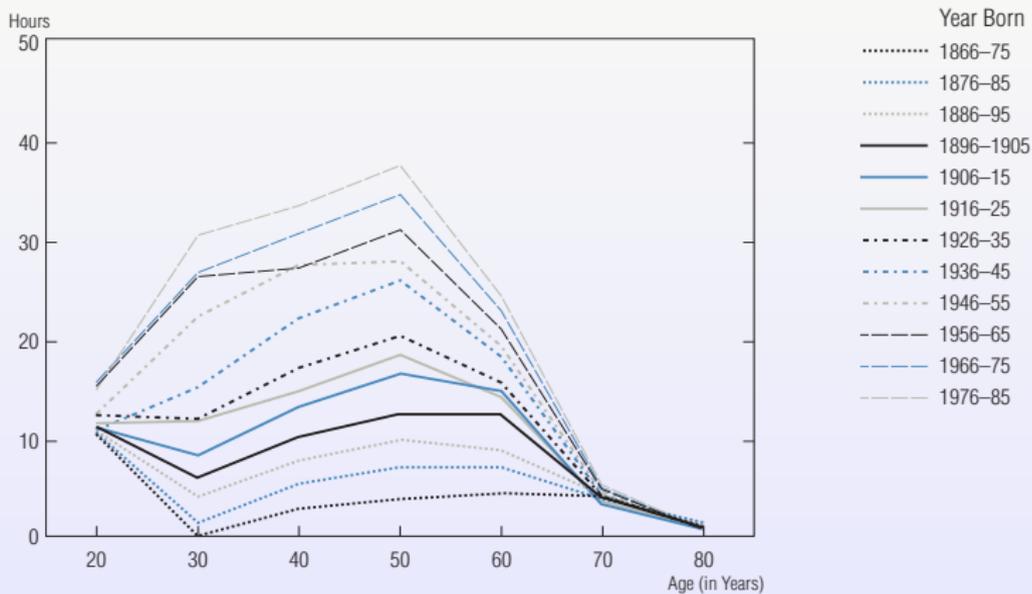
# LIFE-CYCLE LABOR SUPPLY

## BY COHORT: MEN



Source: McGrattan and Rogerson (2002)

# LIFE-CYCLE LABOR SUPPLY BY COHORT: WOMEN



Source: McGrattan and Rogerson (2002)

# AGING IN LABOR AND CAPITAL

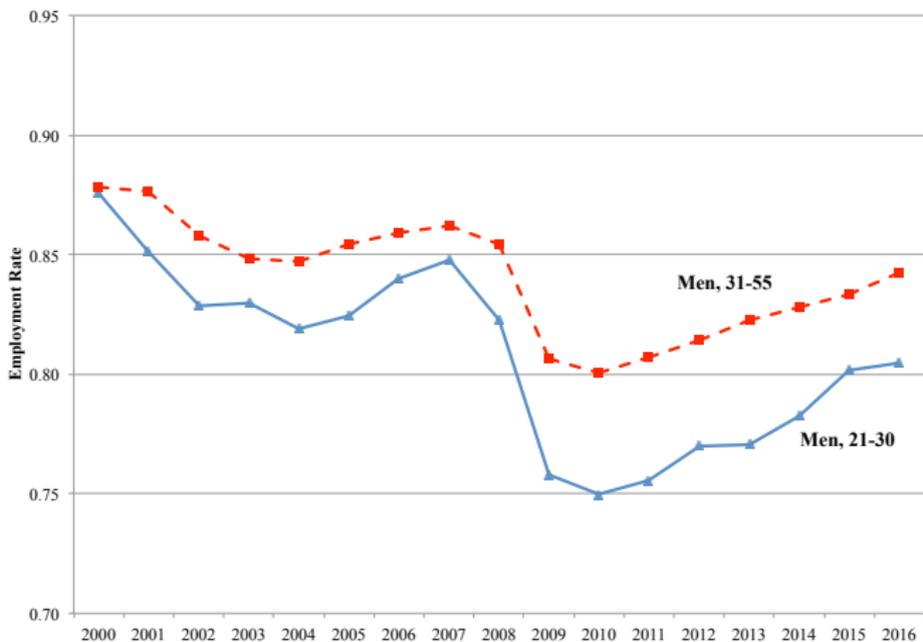
- Population aging is everywhere.
- New Business Formation Slowed Down

# ANOTHER PERSPECTIVE ON WEAK EMPLOYMENT OF YOUNG

Recent paper by Aguiar, Bils, Charles, and Hurst (2018):  
“Leisure Luxuries and the Labor Supply of Young Men”

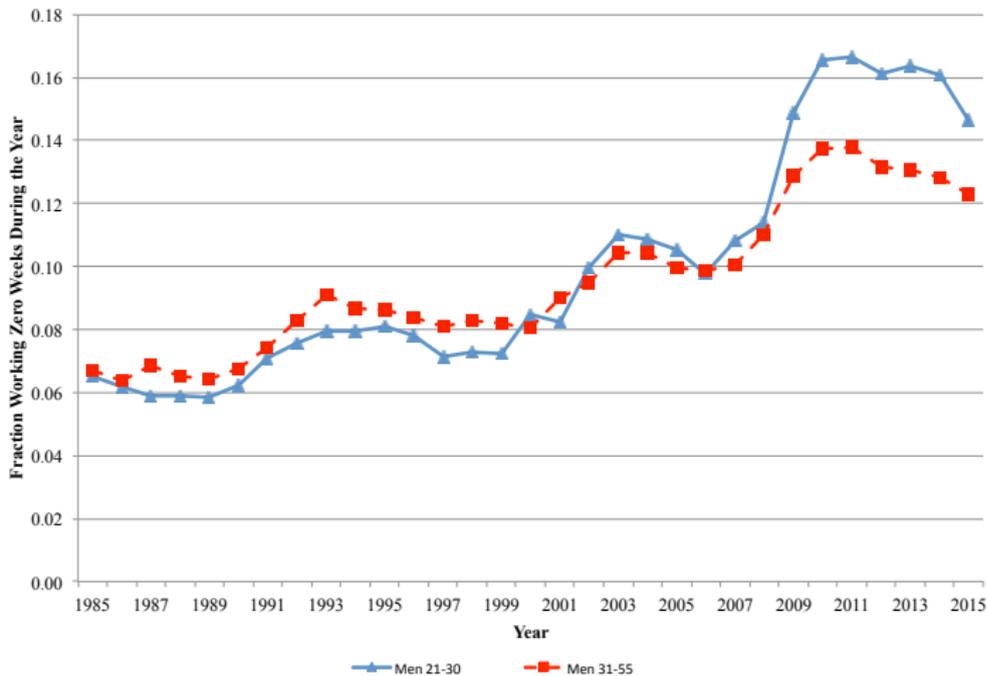
- Big increase in time-intensive leisure activities for **Young**
  - Technological innovations
  - Video games, Netflix, Cable TV.
- Cost-effective leisure activity → **Low** labor supply

# Employment Rates for Younger and Older Men



Source: March CPS (Excludes full-time students under 25)

# Fraction of Men Who Report Working Zero Weeks During the Year

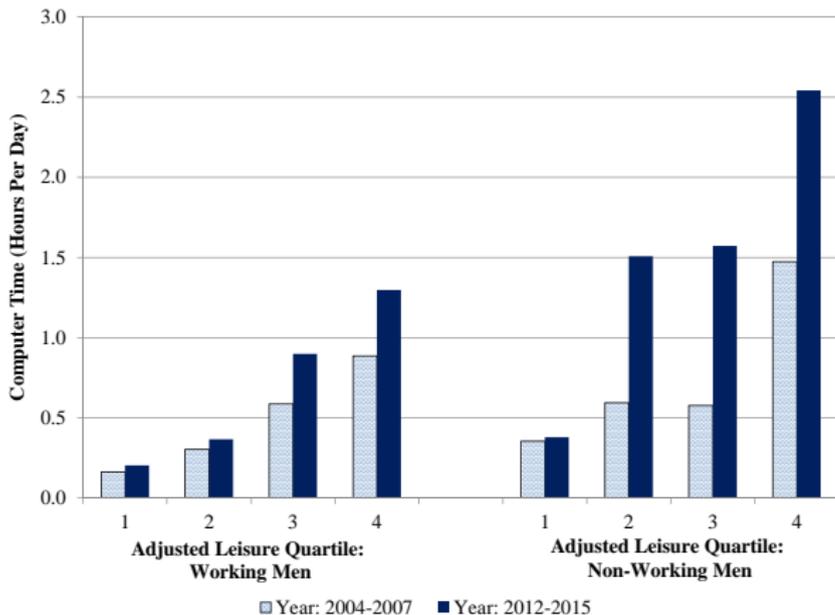


# AMERICAN TIME USE SURVEY

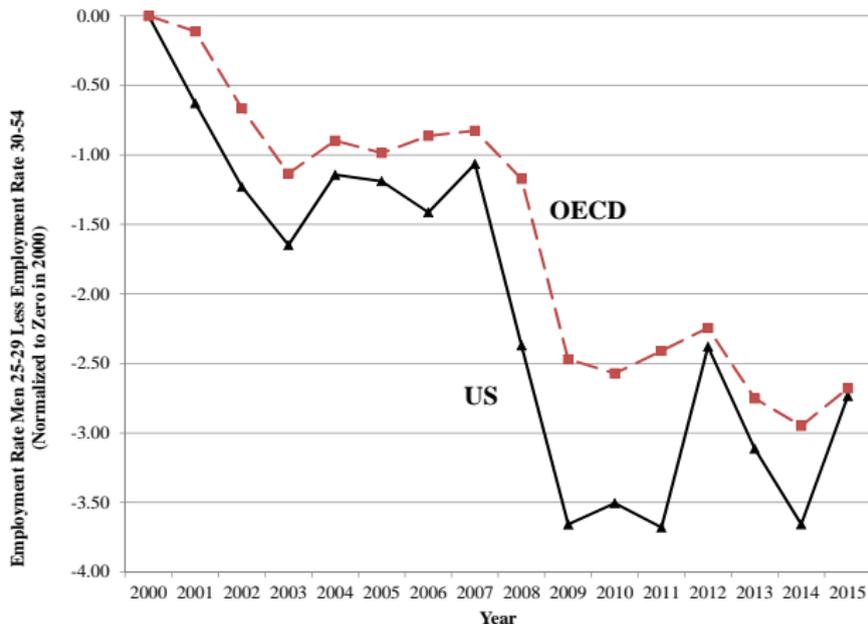
Activity	2004- 2007	2012- 2015	Change
Total Leisure	61.0	63.4	2.3
ESP	24.3	24.9	0.5
Computer	3.3	5.2	2.0
Video Game	2.0	3.4	1.4
TV/Movies	17.3	17.1	-0.2
Socializing	7.8	7.9	0.1
Other	8.3	8.2	-0.1

# Computer Time by Leisure Quartile

By Employment Status



# YOUNG vs. OLD EMPLOYMENT: GLOBAL PHENOMENA



# SLOWDOWN OF PRODUCTIVITY

## TOO SOON TO BLAME TECHNOLOGY...

- Job Loss due to Technological Progress  
(e.g., robots or A.I. this time).
  - **So far, history has proved otherwise.**
- Perhaps we sound like Malthus (too pessimistic).
  - Fogel: 1/3 of economic growth in Britain in 1790-1980 was due to **improved nutrition.**
  - United Nations' Definition of Dependent: Age 65.  
→ Nowadays: **very active and healthy.**