Labor hours in the U.S. business sector

1998: 194 billion hours of labor

2013 -- 15 years later:

- Business output up by 42% or $3.5 trillion
- U.S. population up by over 40 million people
2013: 194 billion hours of labor

“no growth at all in the number of hours worked over this 15-year period, despite the fact that the U.S population gained over 40 million people during that time, and despite the fact that there were thousands of new businesses established during that time.”

What makes IT different?

- Exponential
- Cognitive capability
- General purpose technology
New industries not labor intensive

General Motors 1979
- 840,000 workers
- $11 billion in earnings (2012 dollars)

Google 2012
- 38,000 workers (4.5% of GM)
- $14 billion in earnings (20% > GM)
Old vs New: Occupations & Jobs

2014 Occupations (535) vs 2014 Employment (150MM)

- New occupations: Occupations that existed in 1914
- Workers in new occupations: Workers in occupations that existed in 1914

Source: Gerald Huff, based on an analysis of BLS data
U.S. Productivity vs. Compensation

Global Labor’s Share

Source: Loukas Karabarbounis and Brent Neiman
U.S. Job Creation by Decade

Source: Bureau of Labor Statistics, St. Louis Federal Reserve
U.S. Jobless Recoveries & Polarization

U.S. Recessions - Months for Employment to Recover

Source: Bureau of Labor Statistics, St. Louis Federal Reserve
Innovations in Robotics

- Industrial Perception
  - 3D Machine Vision, Dexterity
  - Moves up to 1 box every second
  - Never tires; no injuries
White-collar Automation

The New Bookkeeper Is a Robot

In corporate finance departments, software does tasks that once took armies of people

By VIPAL MONGA
Updated May 5, 2015 1:55 p.m. ET

Five years ago, 80 clerks and salespeople at Pilot Travel Centers LLC spent a combined 3,200 hours a week tracking and paying for orders for thousands of goods, ranging from candy bars to diesel fuel.

Median staffing in corporate finance departments per $1 billion of revenue

120 full-time finance employees

Source: Hackett Group, Wall Street Journal
Earnings for College Graduates 25-34

Source: Progressive Policy Institute, Census Bureau
Impact on Consumer Demand

- Machines do not consume
- Only people and governments provide final demand for the economy
- Businesses must be able to sell their output

Global Impact
What Should We Do?

- Near Term: Enhance the Safety Net
- Longer Term: Decouple Jobs from Income
  - Guaranteed basic income
  - Incorporate incentives, especially for education