The Future: Jobless Growth

Andy Stern – Senior Fellow Richman Center
**Strategic Inflection Point** *(n)*

An event, development, or confluence of events and developments over time, that result(s) in a significant change in the progress of a company, industry, sector, economy or geopolitical situation. An inflection point can be considered a turning point after which a dramatic change, with either positive or negative results, is expected to result. **Most strategic inflection points appear slowly, and are often not clear until events are viewed in retrospect. Denial is often present in the early stages.**
Growth & Productivity - Good Old-Fashioned Job Creation


Sources: Census Bureau, Bureau of Labor Statistics
Growth & Productivity - Good Old-Fashioned Job Creation


- Labor Productivity
- Private Employment
- Median Household Income
- Real GDP

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Fewer Americans Working

Prime Working Age Adults Are Giving Up on Work

Civilian Employment-Population Ratio (EMRATIO)

Shaded areas indicate US recessions.
2013 research.stlouisfed.org
The Low-Wage Recession and Recovery – Today

Figure 1

Jobs lost in the recession vs. Jobs gained in the recovery

Net change in occupational employment

-4,000,000 -3,500,000 -3,000,000 -2,500,000 -2,000,000 -1,500,000 -1,000,000 -500,000 0 500,000 1,000,000 1,500,000 2,000,000 2,500,000

Higher-wage occupations
Mid-wage occupations
Lower-wage occupations
The Low-Wage Future
By Growth Occupations

Source: BLS
The Low Wage Future - Tomorrow

Workers Employed in Low Wage Jobs 2009
- Low Wage: 24%
- Middle/Upper Income: 76%

Workers Employed in Low Wage Jobs 2020 (projected)
- Low Wage: 48%
- Middle/Upper Income: 52%
Factors?

- Labor Globalization
- Technological Change
- Decline of Unions
- Depreciating Value of Minimum Wage
- Privatization Trends
- Lowering Individual Tax Rates
- Deregulation of Industry
- Increasing Business Concentration
There Are Not Enough Jobs for Everyone

Development of technologies is happening at a more rapid pace and at a larger scale than any previous advances. (Moore’s Law)

Virtually every sector of the economy impacted which inherently limits scale of job creation from new businesses.

There is no economic law that says technology must create as many or more jobs than it destroys.

Not just a manufacturing story. Service sector jobs are the next target of automation.

Real impact will be felt 20 to 40 years in the future
Is This The Turning Point?

Andrew McAfee – Associate Director and Principal Research Scientist at MIT Center for Digital Business
Bo Cutter – Senior Fellow and Director of the Next American Economy Project at the Roosevelt Institute
The Robots Are Coming

“Smart machines now collect our highway tolls, check us out at stores, take our blood pressure, massage our backs, give us directions, answer our phones, print our documents, transmit our messages, rock our babies, read our books, turn on our lights, shine our shoes, guard our homes, fly our planes, write our wills, teach our children, kill our enemies, and the list goes on.”

-Jeffrey Sachs and Laurence Kotlikoff
Schumpeter
Business and management

Additive manufacturing
Print me a jet engine

Nov 22nd 2012, 12:54 by P.M.

CONFIRMATION as to how seriously some companies are taking additive manufacturing, popularly known as 3D printing, came on November 20th when GE Aviation, part of the world’s biggest manufacturing group, bought a privately owned company called Morris Technologies. This is a small precision-engineering firm employing 130 people in suburban Cincinnati, Ohio. Morris Technologies has invested heavily in 3D equipment and will be printing bits for a new range of jet engines. Morris Technologies is laser sintering. This involves spreading a thin layer of powder onto a build platform and then fusing the material with a laser beam, repeated until an object emerges. Laser sintering is capable of producing all 1 parts, including components made from aerospace-grade titanium.
Meet Your Robot Oncologist
By Matthew Yglesias
Posted Friday, May 17, 2013, at 4:50 PM

A blog about business and economics.

IBM’s Watson is displayed at a press conference before the “Man V. Machine” Jeopardy! competition at the IBM T.J. Watson Research Center on Jan. 13, 2011, in Yorktown Heights, N.Y. Photo by Ben Hider/Getty Images

carpenter to work in the Ikea warehouse. The whole point of this is oncological knowledge of a medical doctor and then people who
“We are being afflicted by a new disease which some readers may not have heard the name, but of which they will hear a great deal in the years to come—namely, technological unemployment… In our own lifetimes we may be able to perform all the operations of agricultural, mining, and manufacture with a quarter of the human effort to which we have come accustomed.”

-JM Keynes 1930
“The trite response to this reality is to call for more education and better training for workers, and more investments in research and development as well as infrastructure. It’s true that all such actions would help. But they take time, and even then they would probably only take some of the edge off the decline, not fundamentally reverse it.”

-Peter Orszag
Education - 53% of Recent College Grads Are Un- or Underemployed

Which best describes educational requirements for your current job?¹

<table>
<thead>
<tr>
<th>Requires a 4-year degree</th>
<th>4-year public college</th>
<th>4-year private college</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not require a 4-year degree</td>
<td>45%</td>
<td>34%</td>
<td>42%</td>
</tr>
<tr>
<td>Requires a 4-year degree</td>
<td>55%</td>
<td>66%</td>
<td>58%</td>
</tr>
</tbody>
</table>

¹ "Does not require a 4-year degree" is the sum of respondents who answered "My job does not require any particular amount of education," "My job requires a high-school education," "My job requires some college education," and "My job requires a 2-year degree." "Requires a 4-year degree" is the sum of respondents who answered "My job requires a bachelor's degree" and "My job requires an advanced degree."

Same Old Solutions Won’t Work - Education

Source: Jared Bernstein and BLS Data
Approx. 200,000 U.S. Based Jobs

- IT and Technology Inherently limit the scale of job growth
- Technology allows for leaner operations and growth

Same Old Solutions Won’t Work - Innovation
Same Old Solutions Won’t Work - Stimulus

- Short-term stimulus makes sense
  - Raise demand and eliminate demand-related unemployment
  - Get valuable public works projects completed

- BUT WON’T SOLVE STRUCTURAL ISSUES

- Should we think about a new, more permanent role for stimulus?
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Source: A. Grove, *Only the Paranoid Survive*
“For the first time since his creation man will be faced with his real, his permanent problem—how to use his freedom from pressing economic cares, how to occupy the leisure, which science and compound interest will have won for him, to live wisely and agreeably and well.”

-JM Keynes 1930
Potential Responses To Technological Unemployment

- **Denial – The Luddite Fallacy Lives**
  - Tech unemployment CAN’T happen
  - Creative Destruction will ultimately create jobs

- **Same Old Solutions– Education, innovation and stimulus**
  - Try and win the race against the machines by investing in education
  - Educate people to program machines

- **Libertarian – Get the government out of the way**
  - The market will signal to people what they must do to get by

- **Overinvest in Technology To Speed Change**
  - Tech will solve everything once we actually get to the singularity. Policy won’t matter that much.
  - Problems will only happen in the time from now to when we have fully automated society with everything at our finger tips. Let’s get there FAST!
Potential Responses To Technological Unemployment

- Redistribution based on a new definition of work and/or citizenship
  - Direct government jobs creation
  - Based on people doing “work” that promotes themselves as a good citizen

- Universal Basic Income
  - Purposefully dis-incentivize a portion of work by offering a reasonable standard of living for those who don’t work
  - Eliminate all other safety net programs and create a deregulated, hyper-competitive job market

- Data ownership society
  - Build an infrastructure to track and monitor usage of data and provide micropayments from companies to individuals for usage of “their” data

- Decentralization
  - Technology allows everyone to be self-sufficient within a small area
  - Death of Consumerism
What future economic activity or industry can we expect to offer large scale job creation? In other words, what are the future jobs that will require hundreds of thousands of people to accomplish?
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