



SUSTAINABLE DEVELOPMENT AT A CROSSROADS:

**CHALLENGES FOR INDUSTRIAL GROWTH, ECONOMIC
WELFARE, EMPLOYMENT, AND ENVIRONMENT**

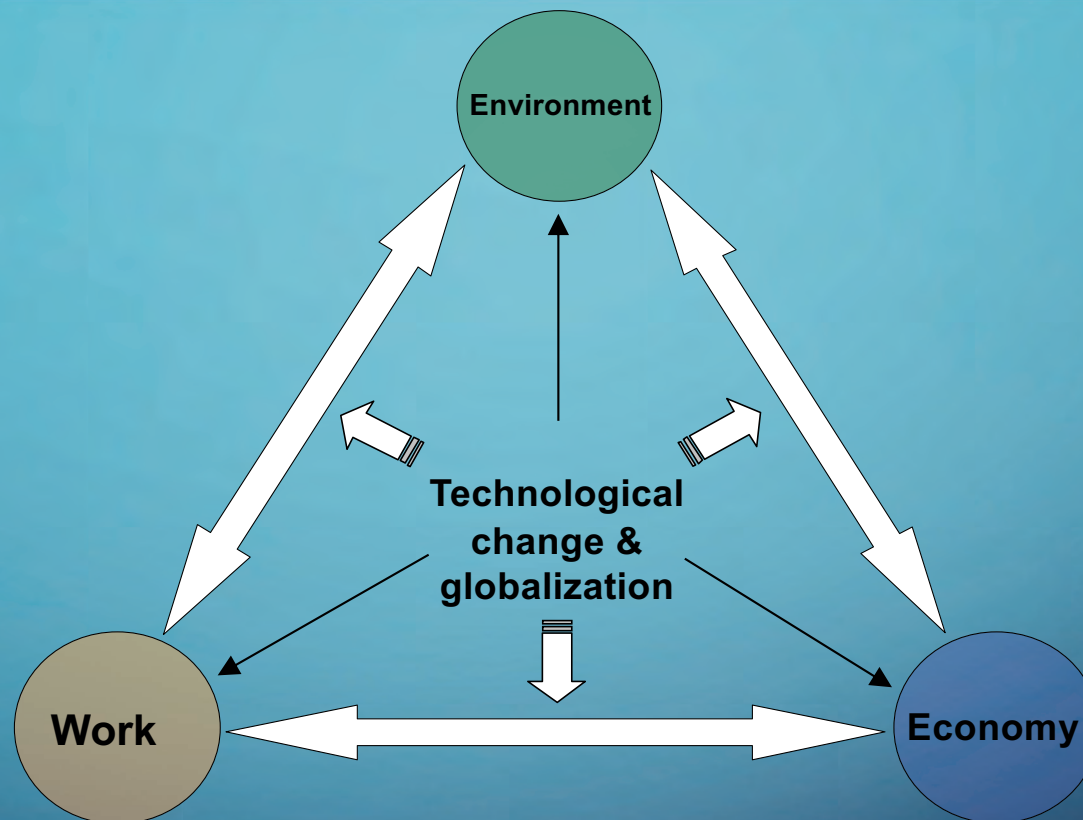
**NICHOLAS A. ASHFORD, PHD, JD
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MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

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NOT (JUST) A TEXTBOOK A BLUEPRINT FOR CHANGE

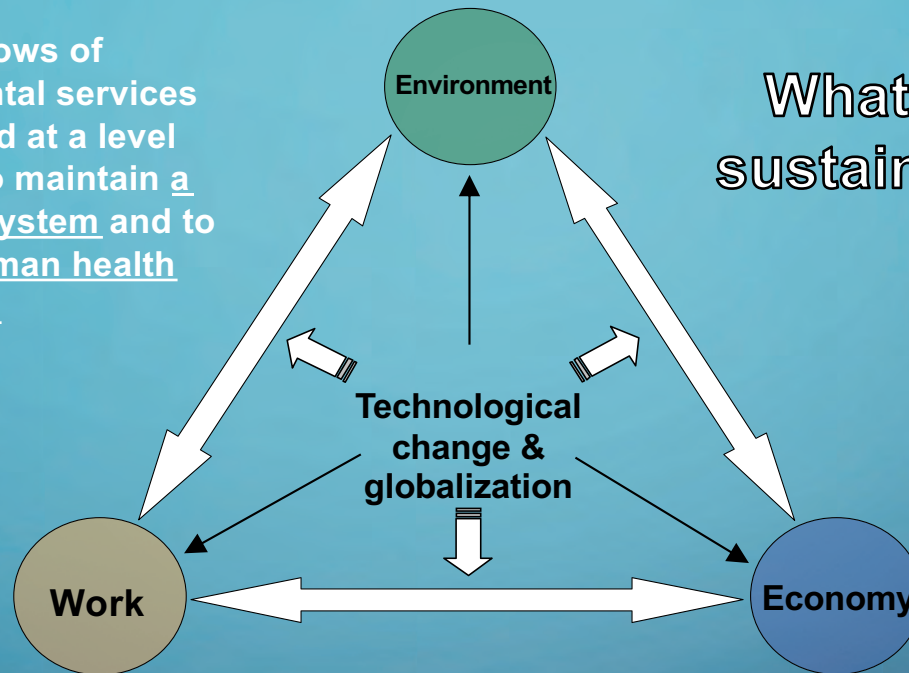
ASHFORD & HALL
2018 Revised Edition



**Technological change and globalization (trade)
as drivers of change within and between three
operationally-important dimensions of
sustainability**

What is the meaning of sustainable development?

Long-run flows of environmental services are provided at a level sufficient to maintain a stable ecosystem and to support human health and welfare



Livelihoods are secure and available that provide satisfying engagement in work and equitable reward for labor, permit the maintenance of a decent standard of living, and are conducted in a safe working environment

The economy provides goods and services adequate to satisfy the basic material needs of all members of society and provides abundant and equitable opportunities for the realization of human potential

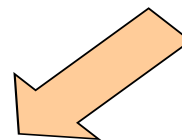
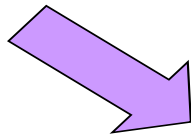


How might the modern industrial or industrializing state be envisioned?

i.e., what is the system?

Supply Side

Extraction industries
Manufacturing
Agriculture
Transportation
Energy
Services
Housing
ICT



Demand Side

Consumer Consumption
Commercial Consumption
Government Consumption

SUSTAINABILITY CHALLENGES

Inadequate Supply of, and Access to, Essential Goods & Services

Toxic Pollution

Climate Disruption

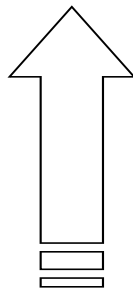
Resource Depletion

Biodiversity/Ecosystem Integrity

Environmental Injustice

Employment/Purchasing Power

Economic Inequity



SOLUTIONS

Education & Human Resource Development

Industry Initiatives

Government Intervention/Regulation

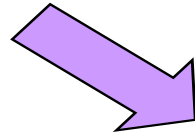
Stakeholder Involvement

Financing Sustainable Development

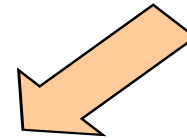
Supply Side

Extraction industries
Manufacturing
Agriculture
Transportation
ENERGY
Services
Housing
ICT

Producer-created demand →



FINANCE
← Subsidies
← Credit →



Consumer Consumption
Commercial Consumption
Government Consumption

Demand Side

SUSTAINABILITY CHALLENGES

Inadequate Supply of, and Access to, Essential Goods & Services

Toxic Pollution

Climate Disruption

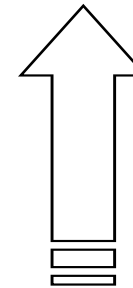
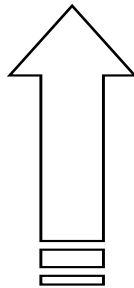
Resource Depletion

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SOLUTIONS

Education & Human Resource Development

Industry Initiatives

Government Intervention/Regulation

Stakeholder Involvement

Reform the Financial System

FACTORS OF PRODUCTION: CRITICAL CHALLENGES

- Factor of production do not reflect their full cost – *failure to internalize negative externalities*- so what is the meaning of economic equilibrium?
- Volatility in the price of the factors of production, undermines the use of labor

Expanded List of the Factors of Production

- Land
- **Natural and physical capital** (material resources)
- **Energy**
- **Labor** capable of performing physical work
- **Know-how (intellectual human capital)**
- [Innovation systems]
- Built capital (that is, infrastructure, such as railways, bridges, roads, ports, airports, and dams)
- **ICT** (information and communication technology)
- (Health and the environment)
- Structural capital (knowledge and productive routines held by organizations)
- Networks and outsiders (linking organizations, people, and entrepreneurs)
- Social capital (knowledge held by consumers and citizens)



A PERFECT STORM BROUGHT ON BY THE FINANCIAL CRISIS

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PRELIMINARY OBSERVATIONS ON THE PERFECT STORM

- ❖ We are facing the longest recovery period of jobs/employment in modern history. Unemployment rates do not tell the whole story; wages & job growth continue to fall.
- ❖ We are facing unprecedented wealth (and income) inequality. And that distortion in wealth has a profound effect on the economic & political agenda of democratic countries (Piketty).
- ❖ We are hollowing out the middle class with a divergence between the stock market and the 'real economy' ... skill-based technological change and the spreading of earning capacity (MIT's 2nd Machine Age)
- ❖ There is great volatility in the US and global economic system.
- ❖ We seem bent on believing in an economic recovery (GDP and productivity), rather than a transformation of the industrial state.
- ❖ We continue to believe that increasing technological innovation is the most assured pathway to better times (contrast the 2nd Machine Age).
- ❖ Global climate disruption/environmental issues remain unaddressed.
- ❖ Reform of the financial system remains illusory.
- ❖ We have an unresponsive political system.

WHAT IS THE NATURE OF THE CURRENT CRISIS?

THE PERFECT STORM: REINFORCEMENT OF BAD OUTCOMES

FINANCE

WEALTH
CONCENTRATION

EMPLOYMENT

CONSUMPTION

INVESTMENT AND
PRODUCTION

ENVIRONMENT

SOLUTIONS

Table 13.1 Strategies to promote more sustainable industrial production and consumption

Industry initiatives	Government intervention and regulation	Education and human resource development	Stakeholder involvement	International community
<ul style="list-style-type: none"> • Use more natural capital. • Dematerialize products and processes. • Devote more attention to durable goods and remanufacturing. • Shift to cleaner and inherently safer technology, products, processes, product-services, and services. • Use less energy in production and in the provision of products and services that themselves require less energy in their operation and use. • Shift from selling products to selling product-services wherever possible. • Hire scientists, environmental and public health professionals, engineers, material scientists, and energy specialists to design and work together to devise energy-saving, cleaner, and inherently safer products, processes, product-services, and services. • Transform, if possible, or replace incumbent industry with innovative and sustainable producers and providers of services. 	<ul style="list-style-type: none"> • Provide the physical infrastructure (for example, high-speed rail, ports, and telecommunications) and legal infrastructure (patent protection, R&D tax credits) for industrial development. • Create and disseminate knowledge and innovation in technology through experimentation and demonstration projects. • Design legislation and regulations that create producer and consumer incentives that favor innovation in production processes, product-services, and system changes that are energy-saving, environmentally sound, inherently safer, and employment enhancing. • Create nascent markets for new technology through government purchasing. • Provide favorable tax treatment for investment and for human resource development and use. • Regulate commercial advertising and provide counteracting government messaging. 	<ul style="list-style-type: none"> • Educate scientists, environmental and public health professionals, engineers, material scientists, and energy specialists to design and work together to devise cleaner and inherently safer products and production processes. • Educate children to meet their needs with nonmaterial goods and activities wherever possible and to recognize and want sustainable products and activities. 	<ul style="list-style-type: none"> • Through education and communication, encourage consumers and citizens to favor energy-saving, cleaner, and inherently safer products, product-services, and services and to meet their needs (for example, for leisure and recreation). • There are opportunities within each of these consumer groups to promote sustainable or green purchasing practices. 	<ul style="list-style-type: none"> • Ensure that UNIDO has sufficient resources to promote sustainable industrial development that supports competitiveness, protects the environment, and provides meaningful and decent employment.

Shared Responsibility: Industry initiatives; Government intervention and regulation; Education and human resource development; Stakeholder involvement; International community

Promote more sustainable industrial production and consumption (circular economy)

Source: Adapted from Ashford and Hall (2011b).

Table 13.2 Strategies to improve health, safety, and the environment

<i>Industry initiatives</i>	<i>Government intervention and regulation</i>	<i>Education and human resource development</i>	<i>Stakeholder involvement</i>	<i>International community</i>
<ul style="list-style-type: none"> • Hire specialists in health, safety, environmental impact assessment, and energy. • Integrate marketing, product development, production, environmental affairs, and human resource efforts by eliminating or transcending the unnecessary divisional divides in the firm. 	<ul style="list-style-type: none"> • Design legislation, regulations, and tax incentives that favor products, processes, product-services, and inherently safer, and employment enhancing. • Remove regulations and tax treatment that create perverse incentives. • Tax unsustainable products and processes. 	<ul style="list-style-type: none"> • Educate scientists, environmental, and public health professionals, engineers, material scientists, and <i>natural</i> environment through sustainable industrial production and consumption. 	<ul style="list-style-type: none"> • Promote NGO activity to press for energy-saving, environmentally sound, and inherently safer products and production. • Design products for the regulatory and educational initiatives needed to promote more sustainable industrial production and consumption. 	<ul style="list-style-type: none"> • Press for the signing, ratification, implementation, and enforcement of MEAs. • Open up the negotiation process to include NGOs and labor organizations. Empower the UNEP as the central institution to coordinate the various MEA secretariats. • Ensure UNEP receives the funding it was promised at Rio+20.

Improve health, safety, the environment, and global climate impacts

Source: Adapted from Ashford and Hall (2011b).

Table 13.3 Strategies to enhance meaningful, rewarding, and safer employment and adequate earning capacity

<i>Industry initiatives</i>	<i>Government intervention and regulation</i>	<i>Education and human resource development</i>	<i>Stakeholder involvement</i>	<i>International community</i>
<ul style="list-style-type: none"> • Invest in new products, processes, product-services, and services that enhance employment. • Seek productivity improvements by processes that increase the <i>productiveness</i> of workers. • Invest in increasing the capacity of the firm's human resources rather than replace labor with capital. • Engage in revenue-enhancing activities and commerce through innovation and performance enhancement rather than through cost-reduction strategies involving the reduction of jobs or wages. • Pay attention to the human-technology interface, that is, optimize matching human behavior with technological artifacts. • Foster healthy industrial relations. • Make changes to the social and hierarchical environment in the enterprise. 	<ul style="list-style-type: none"> • Reject the liberalization of labor markets. • Remove disincentives to hire labor (e.g., remove policies that tax labor). • Promote incentives to use labor. • Support research on mechanisms for job creation <p>employment and job creation through labor standards and protections (for example, for health and safety), continuing education and upskilling, tax incentives to employers, and unemployment adjustment policies, including reeducation and unemployment and income guarantees.</p> <ul style="list-style-type: none"> • Expand the opportunities for capital ownership by workers and ordinary citizens. 	<ul style="list-style-type: none"> • Rethink educational pedagogy, focusing on the acquisition of both technical skills that engender systems and critical thinking and interpersonal skills involving the ability to communicate. 	<ul style="list-style-type: none"> • Encourage workers to press both for more stable, more meaningful, safer, and more rewarding employment and for opportunities to acquire capital ownership. • Educate and train 	<ul style="list-style-type: none"> • Secure the funding and aggressively pursue the nonpayment of dues by some nations to fully empower the ILO to carry out its mission. • Begin a serious dialogue with the WTO regarding the adoption of core

Enhance meaningful, rewarding, and safer employment with adequate earning capacity

Source: Adapted from Ashford and Hall (2011b).

Table 13.4 Strategies to promote more sustainable industrial trade

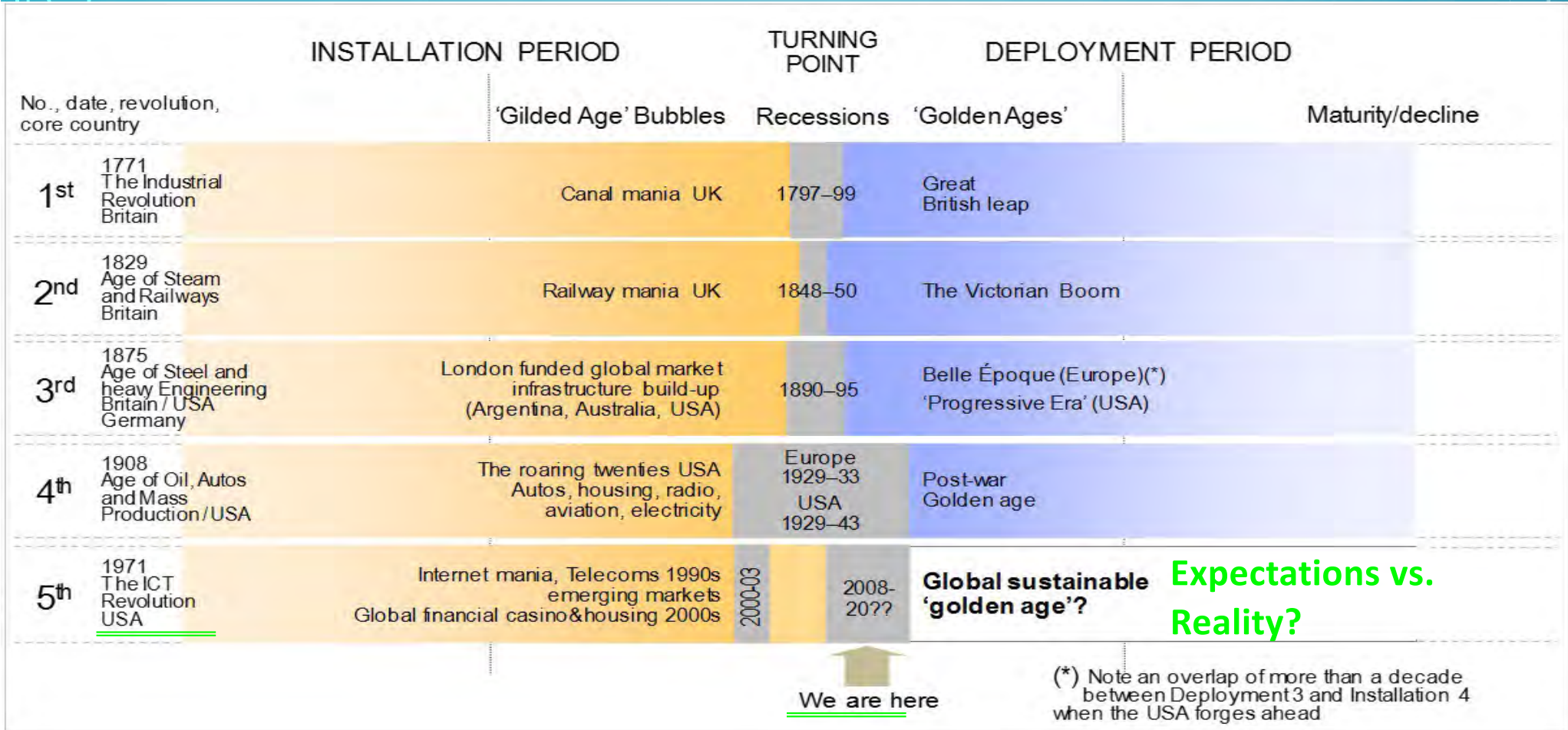
<i>Industry initiatives</i>	<i>Government intervention and regulation</i>	<i>Education and human resource development</i>	<i>Stakeholder involvement</i>	<i>International community</i>
<ul style="list-style-type: none"> • Support or join sustainable trade initiatives/coalitions. • Obtain investment capital from banks that advocate for sustainable trade. 	<ul style="list-style-type: none"> • Encourage national firms to trade from the “bottom of the pyramid.” • Think beyond increasing revenues to the private sector, or the balance of payments, when planning <p>commitment made by developed nations at the Rio Conference to provide financial and technical assistance to developing nations.</p> <ul style="list-style-type: none"> • More aggressively pursue the adoption and enforcement of codes of conduct in the financing of projects in developing countries. • Increase the transparency and accountability of the activities of export credit agencies and sovereign wealth funds. 	<ul style="list-style-type: none"> • Educate business and finance graduates and public administrators on strategies to promote sustainable trade. 	<ul style="list-style-type: none"> • Press for transparency and accountability on the part of the nation’s trade representative. • Press for consultations of adversely affected and disadvantaged firms <p>environmental protection in trade negotiations and agreements.</p> <ul style="list-style-type: none"> • Expand multipartite governance used in the ILO to negotiations 	<ul style="list-style-type: none"> • Develop a consistent, coherent trade policy that removes the conflicts among the different trade treaties by revising the GATT, TBT, and SPS agreements. • Develop a more open-minded approach to respecting the of individual nations establish their own ee of health, safety, and onmental protection and minimum standards <i>on a precautionary basis</i>, reflecting their cultural preferences. • Recognize the importance of securing the protection of labor and human rights in all trade agreements. <ul style="list-style-type: none"> • Consider adopting a multipartite governance structure. • Resolve conflicts in requirements and philosophies among MEAs, TRIPS, WTO and other trade regimes, and national environmental and public health protection laws.

Embark on a deliberate strategy to decrease unsustainable growth

Promote more sustainable industrial trade

Source: Adapted from Ashford and Hall (2011b).

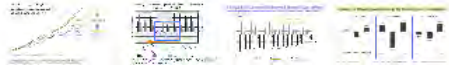
Waves of Creative Destruction



Source: adapted from Perez, C. (2016). "Capitalism, Technology and a Green Global Golden Age: The Role of History in Helping to Shape the Future" in Mazzucato and Jacobs eds. 2016 *Rethinking Capitalism* in Political Quarterly.

Troublesome Realities

1. Job polarization and the hollowing out of the middle class



2. A three-decade declining labor share of total income



3. Increasing cost of living



4. Growing income and wealth concentration



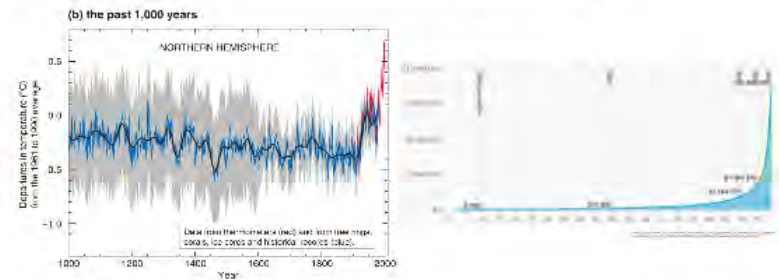
5. The economy has substantial unutilized productive capacity

They Are Connected

The problem is **not** the technological ability to produce more

The problem is to do so **profitably, equitably, and sustainably**

The Two Ice Hockey Sticks



The currently discussed long-term solution to **sustainability** is **technological advance** (U.S. and EU perspective - is optimism justified?)

Technological advance can eliminate labor that contributes to **effective demand**

When Workers Began Falling Behind

Until the 1980s labor productivity, real GDP per capita, private employment, and median family income all rose in tandem in the U.S. Then median income started to trail, and around 2000 job growth slowed.

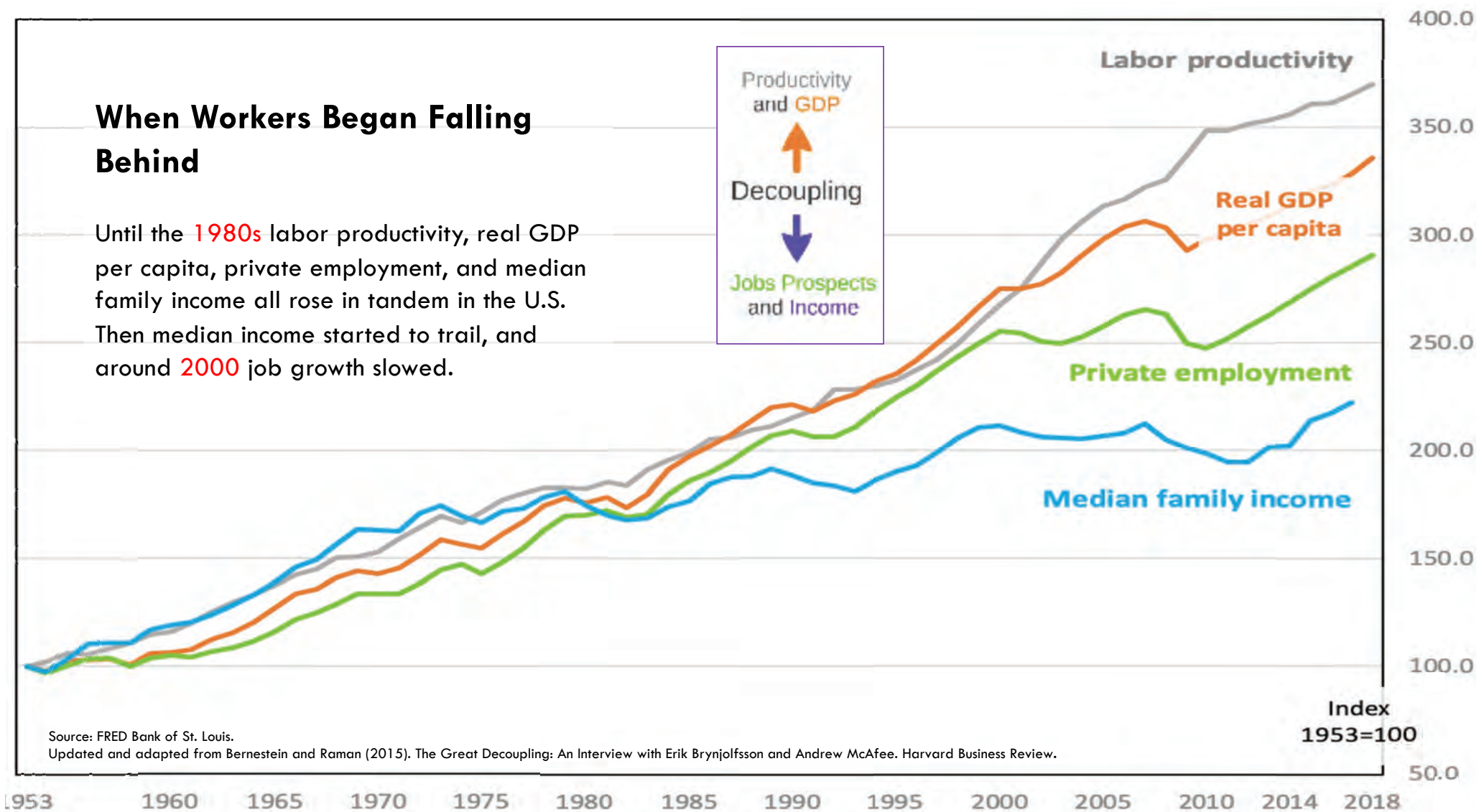
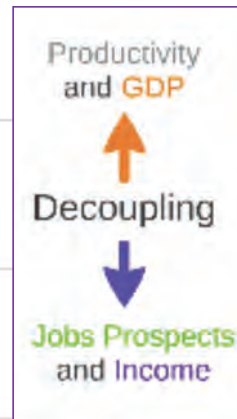
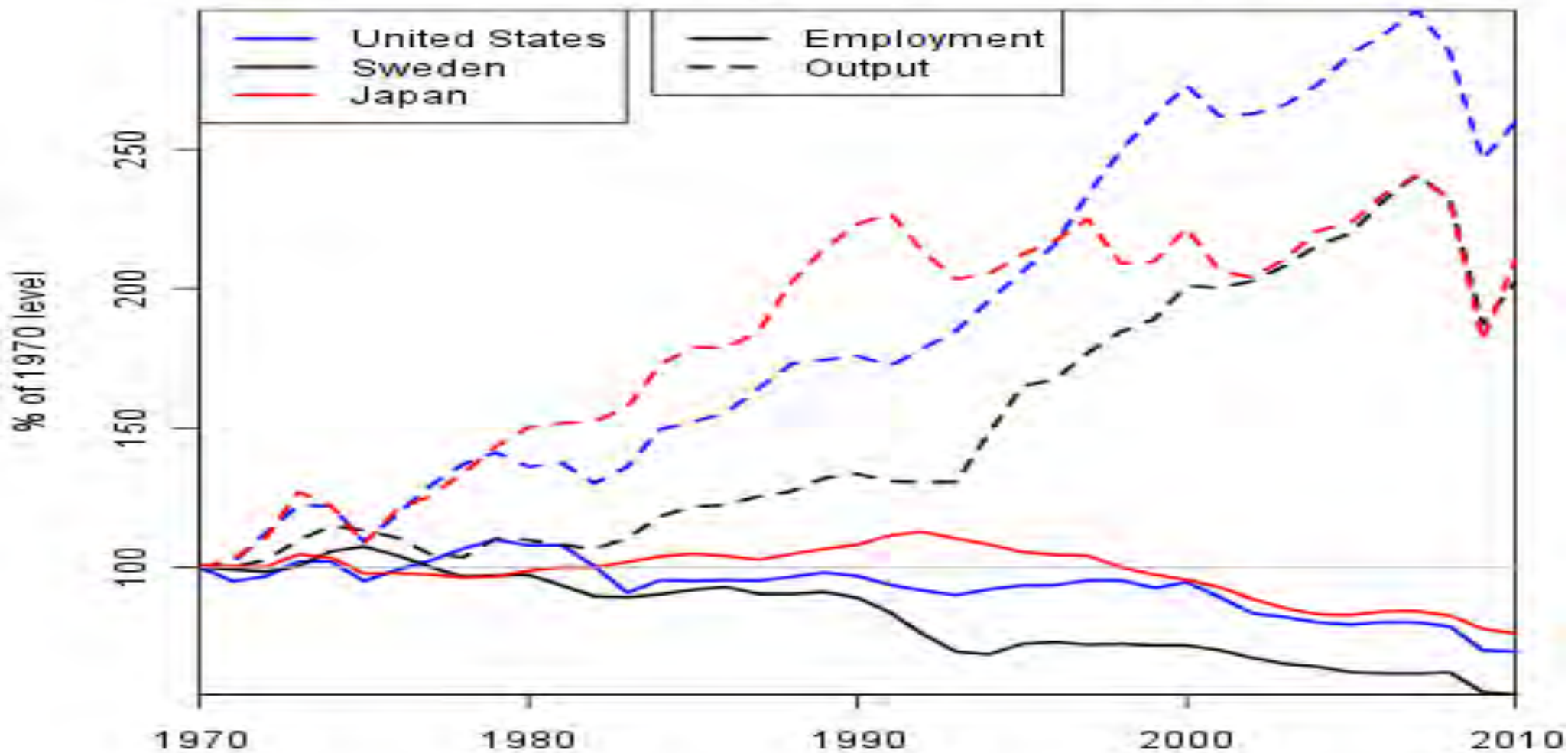


CHART 1: MANUFACTURING OUTPUT & EMPLOYMENT

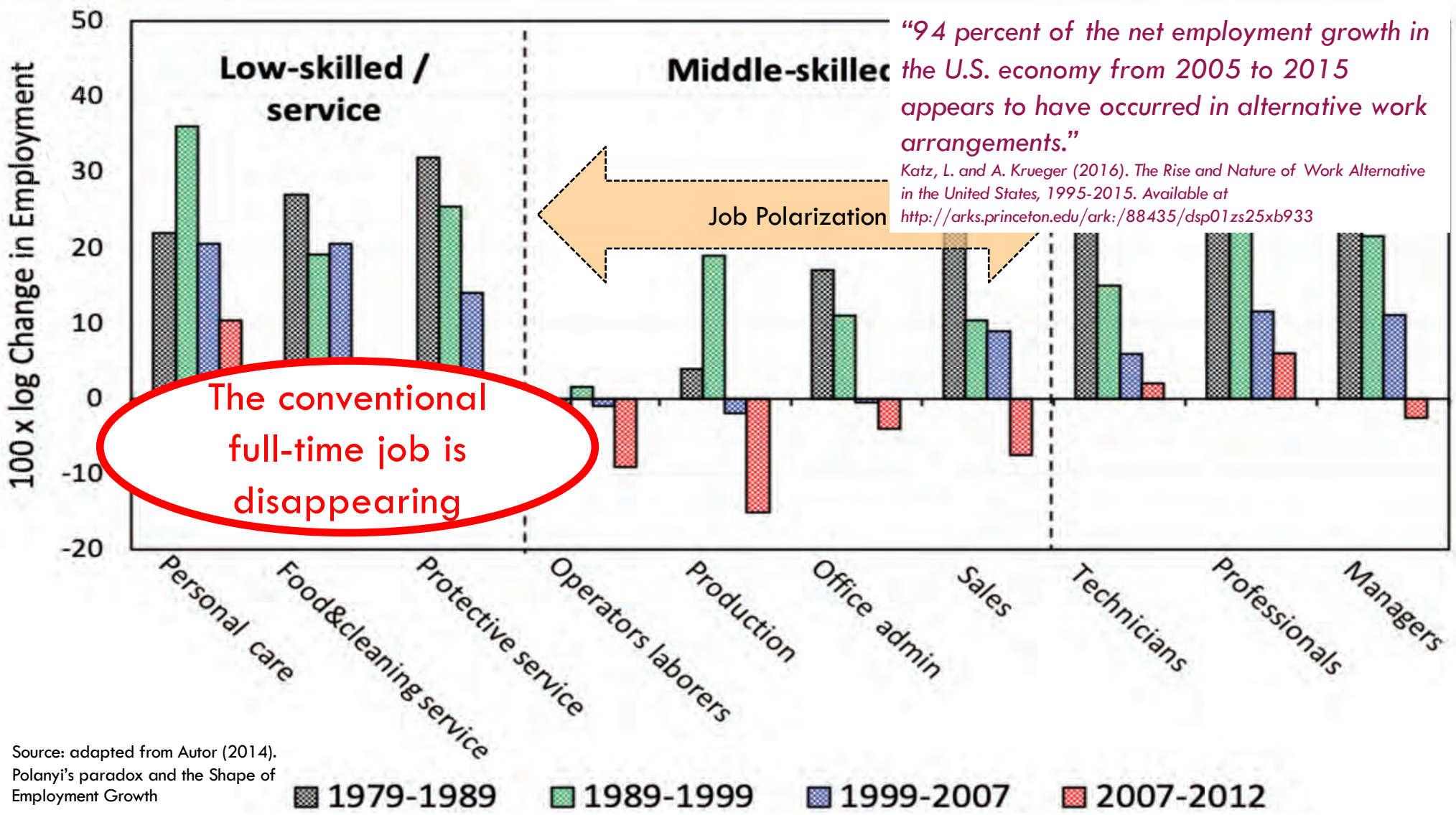


Source – Thomson Datastream <https://www.businessinsider.com/manufacturing-output-versus-employment-chart-2016-12>

Manufacturing employment and output



Source: Peter Frase. Available at <http://www.peterfrase.com/2011/04/manufacturing-output-around-the-world/>



Wealth

America's Millennials Are Waking Up to a Grim Financial Future

Job prospects, savings, safety nets, life expectancy—the data show just how bad a mess they face.

By [Ben Steverman](#)

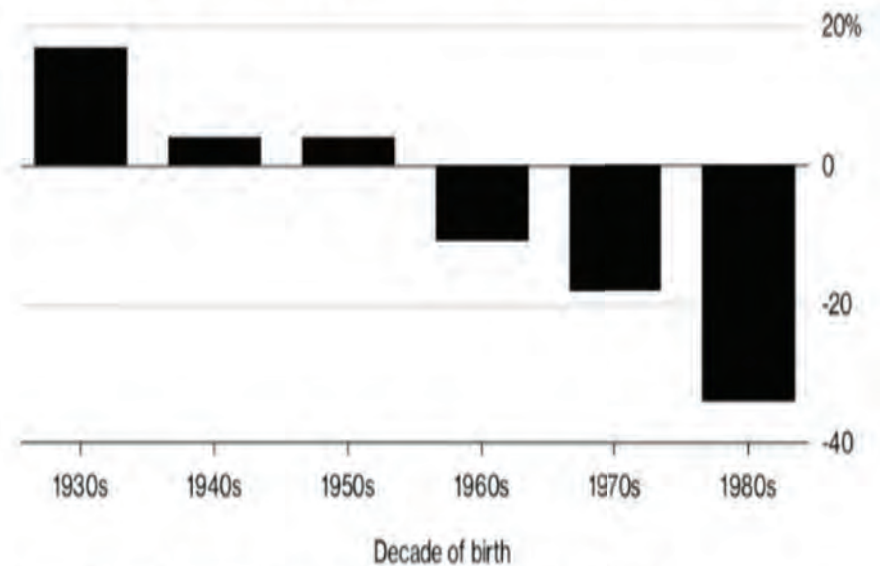
June 21, 2018, 4:00 AM EDT

Of course, it's perfectly normal for people just starting out to have less in the bank. However, the St. Louis Fed warned that, even when taking that into account, young Americans are slipping dangerously behind. For a time, Generation X was also losing out, thanks to the 2008 financial crisis. But its members managed to make up most of the shortfall in the years since, tapping into the longest economic expansion in decades.

For some reason that period of tremendous growth barely helped millennials. The St. Louis Fed called this anomaly "a missed opportunity because asset appreciation is unlikely to be as rapid in the near future." That's pretty bad news for twenty and thirtysomethings who may have been hoping to catch up. But it gets worse.

Millennials' Missing Wealth

Deviation of 2016 wealth from predicted levels based on age and typical life cycle.

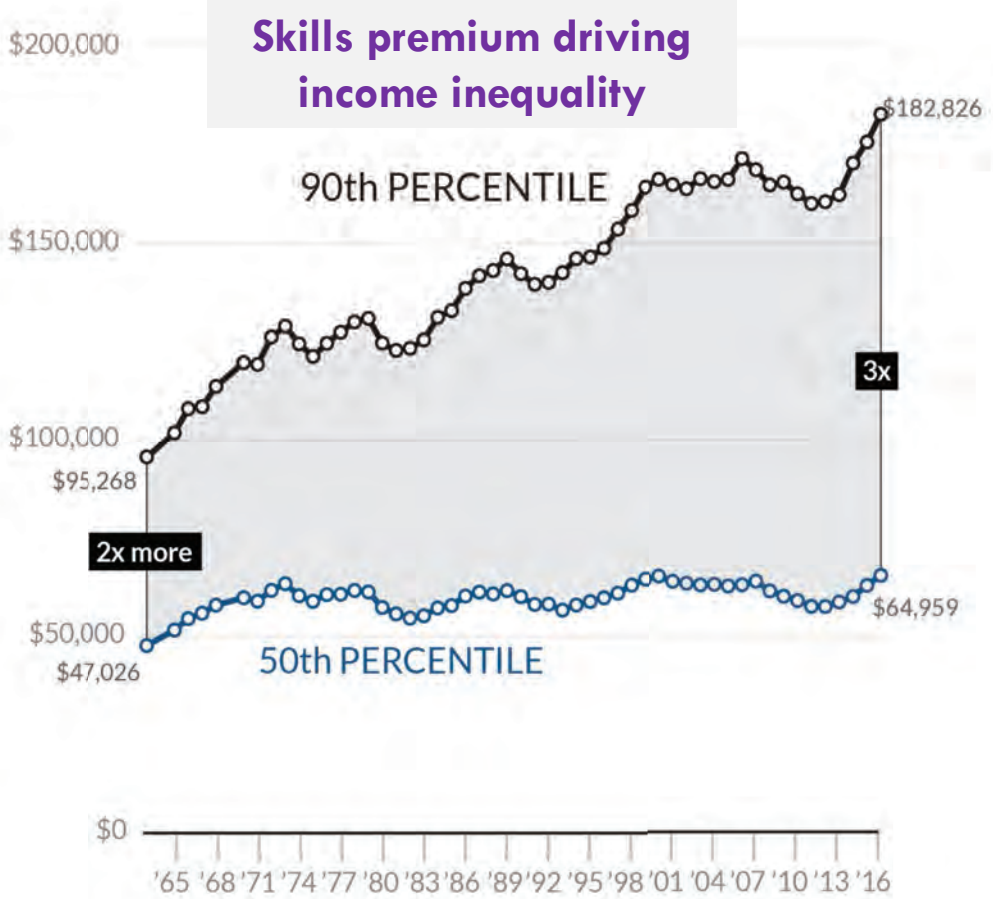
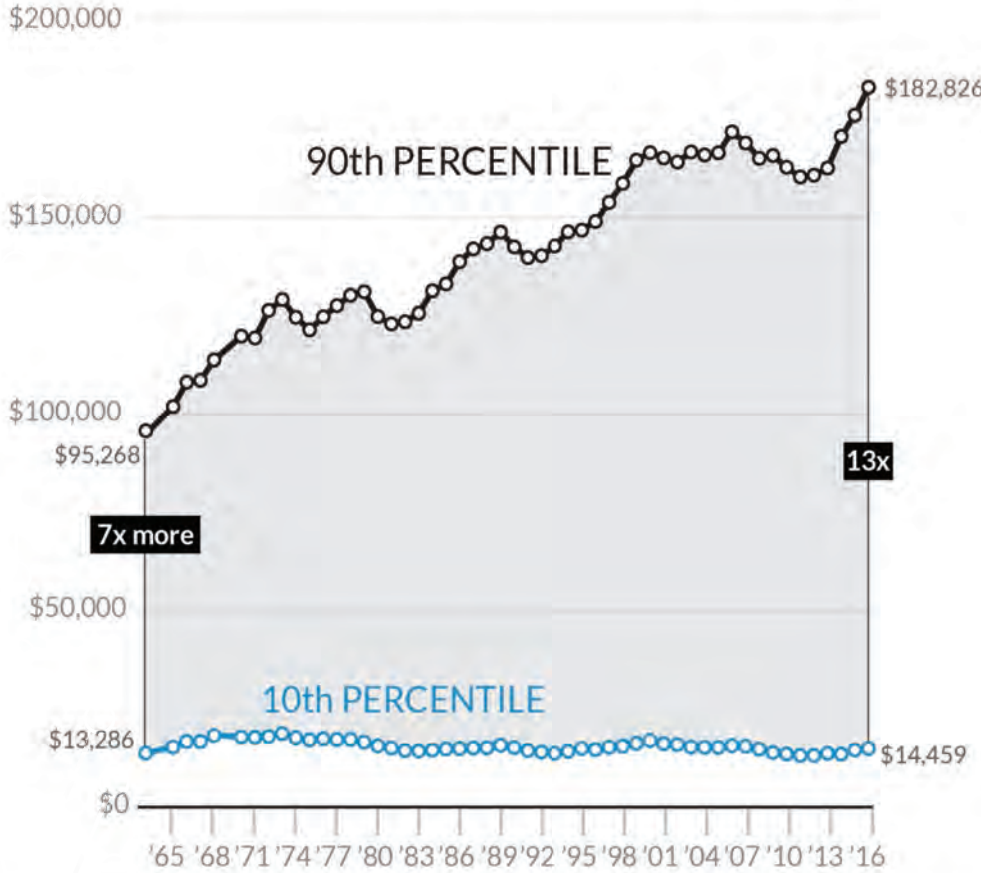


Source: "A Lost Generation? Long-Lasting Wealth Impacts of the Great Recession on Young Families," Federal Reserve Bank of St. Louis, May 2018

Bloomberg

Source: <https://www.bloomberg.com/news/articles/2018-06-21/america-s-millennials-are-waking-up-to-a-grim-financial-future>

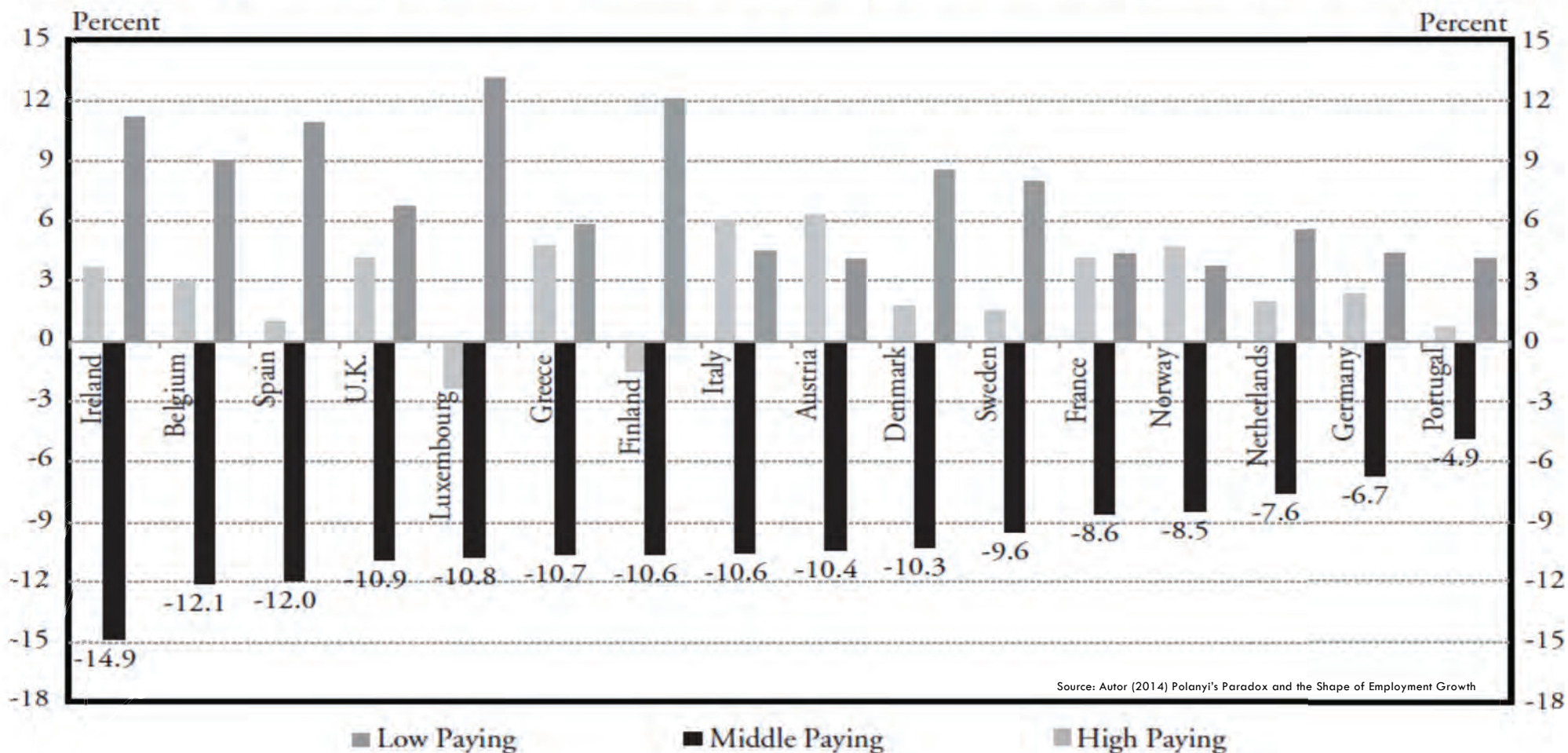
Distribution of Family Income, 1963–2016



Source: Karen Smith, Urban Institute's tabulations from the Current Population Survey 1963–2017.

Notes: 2016 dollars. Income here is measured as private income (e.g., earnings and dividends) plus cash government benefits. Income differences narrow when all taxes and transfers—such as health insurance and in-kind government benefits—are included, but private wealth does not change.

Change in Occupational Employment Shares in Low-, Middle- and High-Wage Occupations in 16 EU Countries, 1993-2010

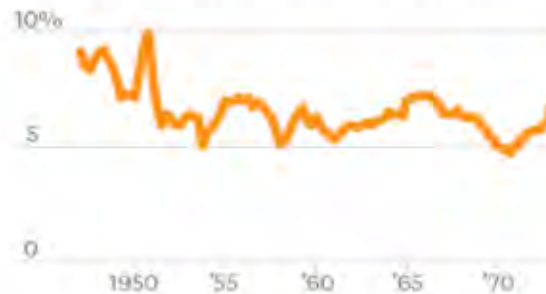


Source: Autor (2014) Polanyi's Paradox and the Shape of Employment Growth

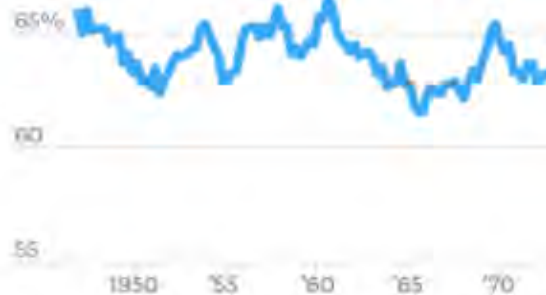
As Profits Climb, Wages Plummet

In the U.S., corporate profits were rising before the 2008 recession and quickly recovered from it. In contrast, labor's share of GDP, which was high in the 1950s, has been declining since then.

CORPORATE PROFITS AS A PERCENTAGE OF GDP

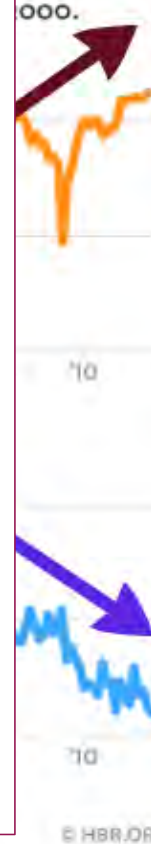


WAGES AS A PERCENTAGE OF GDP



SOURCE: FEDERAL RESERVE BANK OF ST. LOUIS; ERIK BRYNJOLFSSON AND ANDREW MCAFEE FROM "THE GREAT DECOUPLING," JUNE 2015

In the Age of Automation...as production becomes more capital intensive, the distribution of earning will become more capital intensive



Trade / Financial Openness

Automation

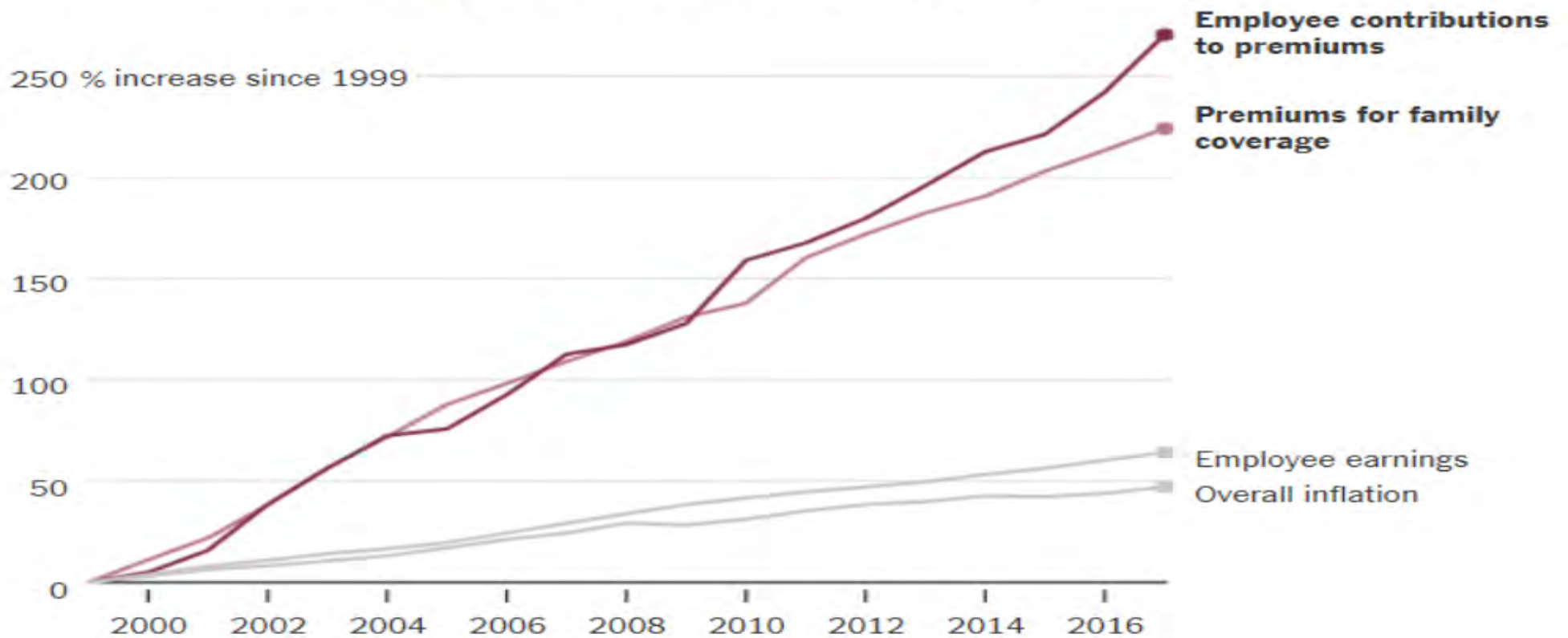
Labor Union Decline

Etc.

Labor's share of GDP has declined in 42 out of 59 industrialized countries

Source: Bernstein and Raman (2015) The Great Decoupling: An Interview with Erik Brynjolfsson and Andrew McAfee. Harvard Business Review.

Premiums Are Rising Faster Than Earnings and Inflation

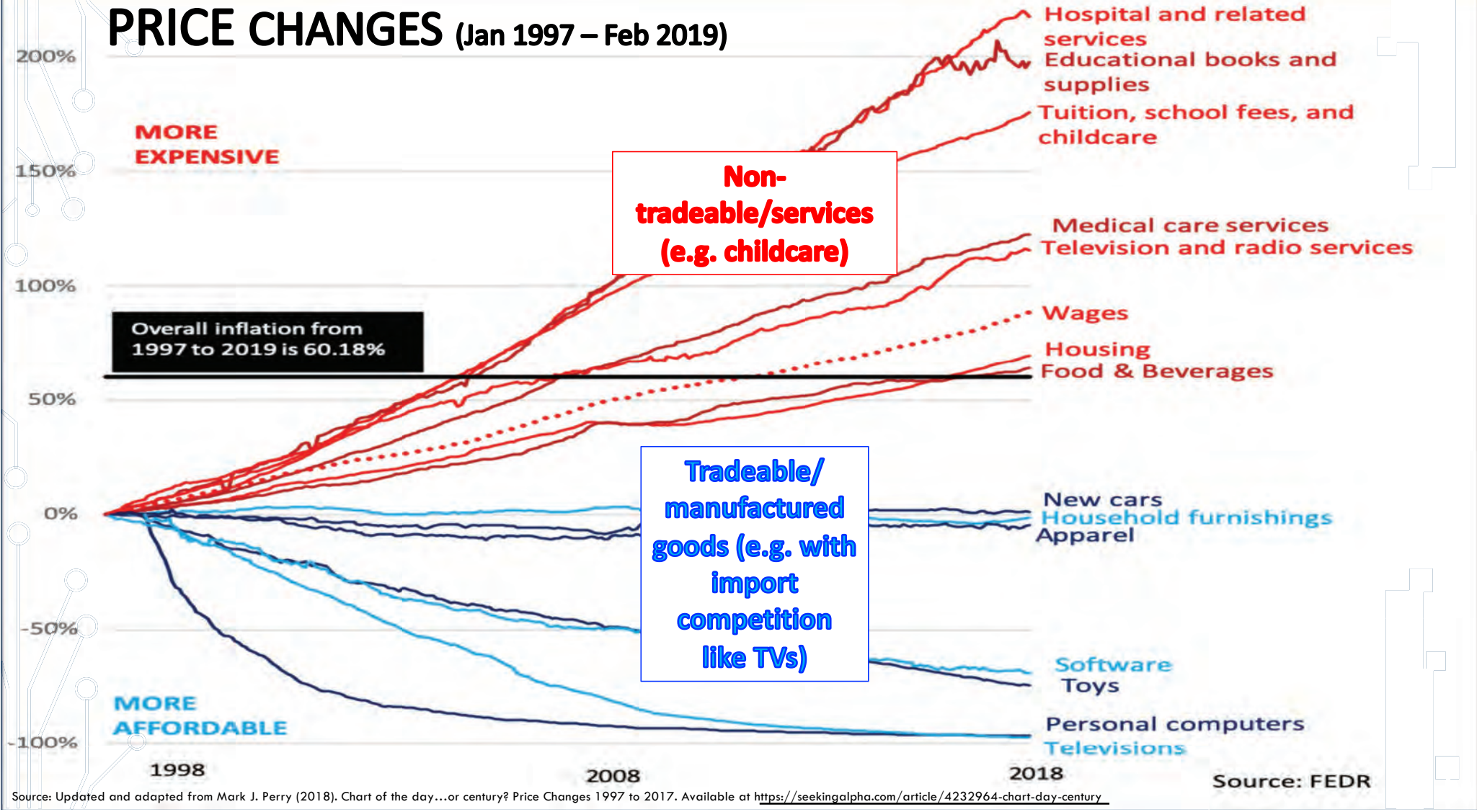


Percent increases in employee earnings are of seasonally adjusted average hourly earnings recorded in April of each year.

By Denise Lu | Sources: Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999–2017; Bureau of Labor Statistics

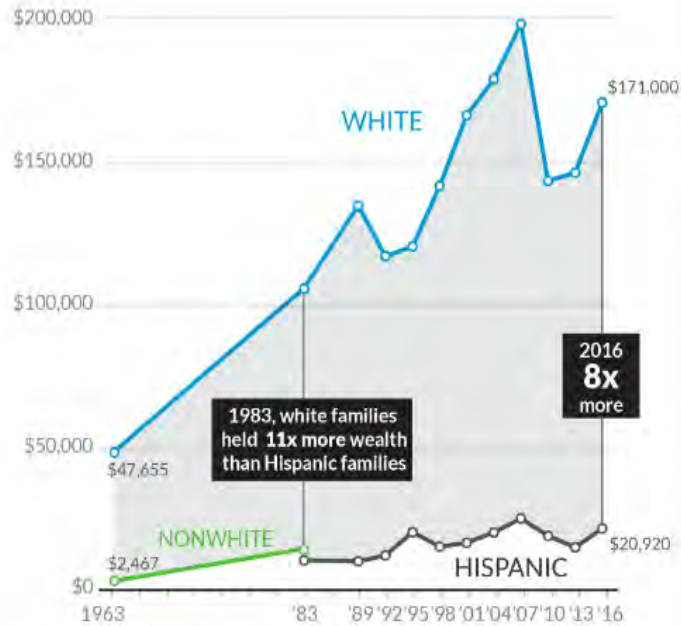
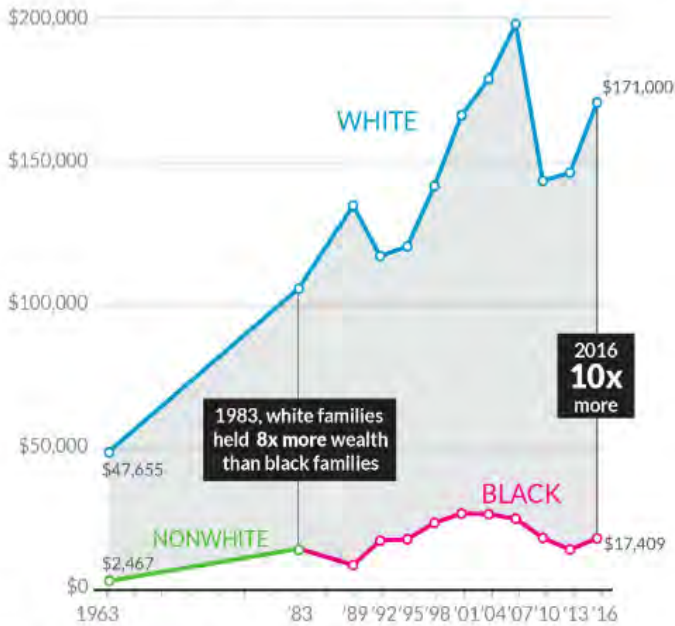
Source: Wingfield et al., (2018). Amazon, Berkshire Hathaway, and JPMorgan Team Up to Try to Disrupt Health Care. New York Times, January 30, 2018.

PRICE CHANGES (Jan 1997 – Feb 2019)



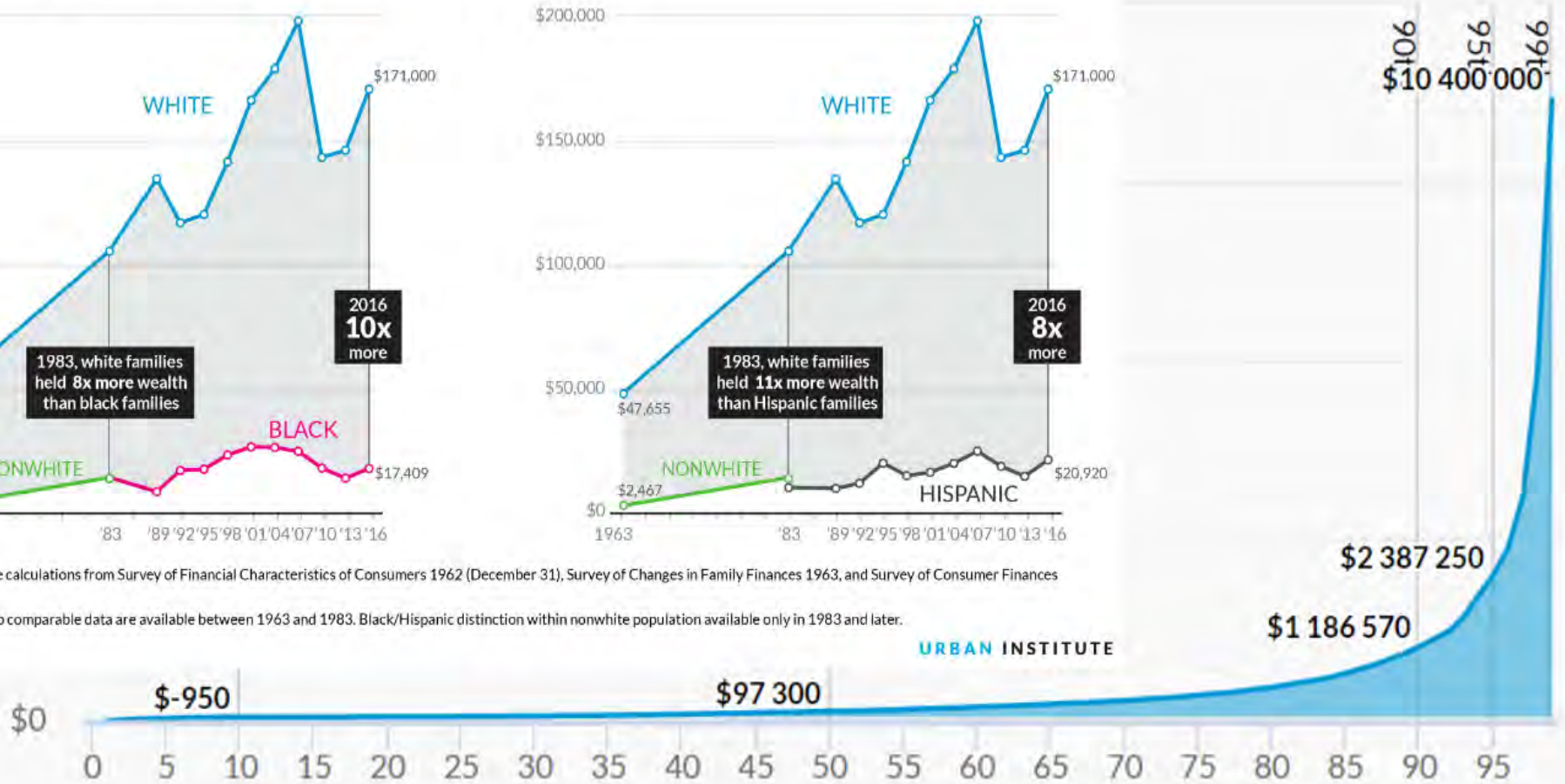
Source: Updated and adapted from Mark J. Perry (2018). Chart of the day...or century? Price Changes 1997 to 2017. Available at <https://seekingalpha.com/article/4232964-chart-day-century>

Median Family Wealth by Race/Ethnicity, 1963-2016



Source: Urban Institute calculations from Survey of Financial Characteristics of Consumers 1962 (December 31), Survey of Changes in Family Finances 1963, and Survey of Consumer Finances 1983-2016.

Notes: 2016 dollars. No comparable data are available between 1963 and 1983. Black/Hispanic distinction within nonwhite population available only in 1983 and later.



DISTRIBUTION OF WEALTH 2016

Source: Urban Institute calculations from Survey of Financial Characteristics of Consumers 1962 (December 31), Survey of Changes in Family Finances 1963, and Survey of Consumer Finances 1983-2016.

Richest 1 percent bagged 82 percent of wealth created last year - poorest half of humanity got nothing

Published: 22 January 2018

Eighty two percent of the wealth generated last year went to the richest one percent of the global population, while the 3.7 billion people who make up the poorest half of the world saw no increase in their wealth, according to a new Oxfam report released today. The report is being launched as political and business elites gather for the World Economic Forum in Davos, Switzerland.

'**Reward Work, Not Wealth**' reveals how the global economy enables a wealthy elite to accumulate vast fortunes while hundreds of millions of people are struggling to survive on poverty pay.

Source: <https://www.oxfam.org/en/pressroom/pressreleases/2018-01-22/richest-1-percent-bagged-82-percent-wealth-created-last-year>

JOSEPH E. STIGLITZ



Joseph E. Stiglitz, recipient of the Nobel Memorial Prize in Economic Sciences in 2001 and the John Bates Clark Medal in 1979, is University Professor at Columbia University, and Chief Economist of the Roosevelt Institute. His most recent book is *The Euro: How a Common Currency Threatens the Future of Europe*. Twitter: @JosephEStiglitz

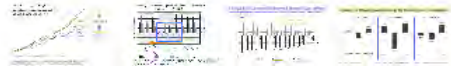
Joseph Stiglitz Says Standard Economics Is Wrong. Inequality and Unearned Income Kills the Economy

The rules of the game can be
changed to reverse inequality

<http://economics.com/joseph-stiglitz-inequality-unearned-income/>

Troublesome Realities

1. Job polarization and the hollowing out of the middle class



2. A three-decade declining labor share of total income



3. Increasing cost of living



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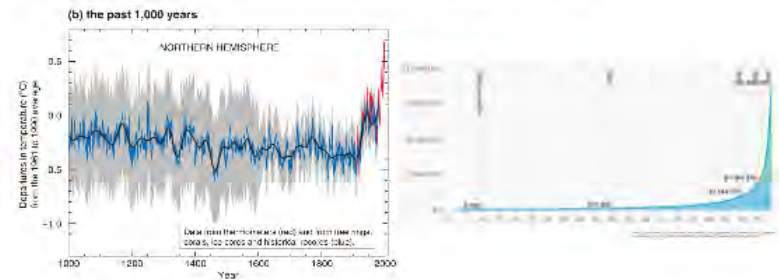
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They Are Connected

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The Two Ice Hockey Sticks

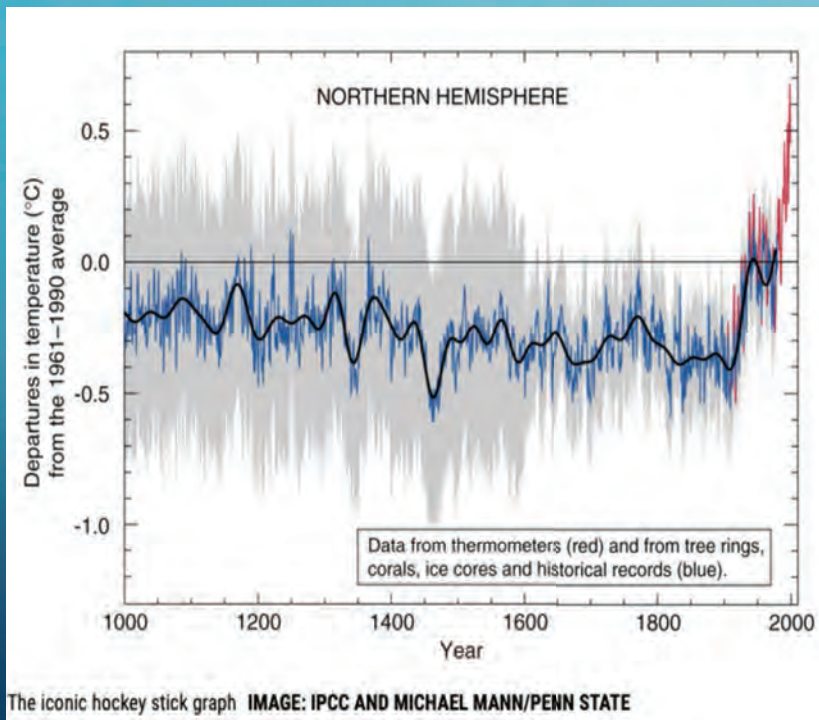


The currently discussed long-term solution to **sustainability** is **technological advance** (U.S. and EU perspective - is optimism justified?)

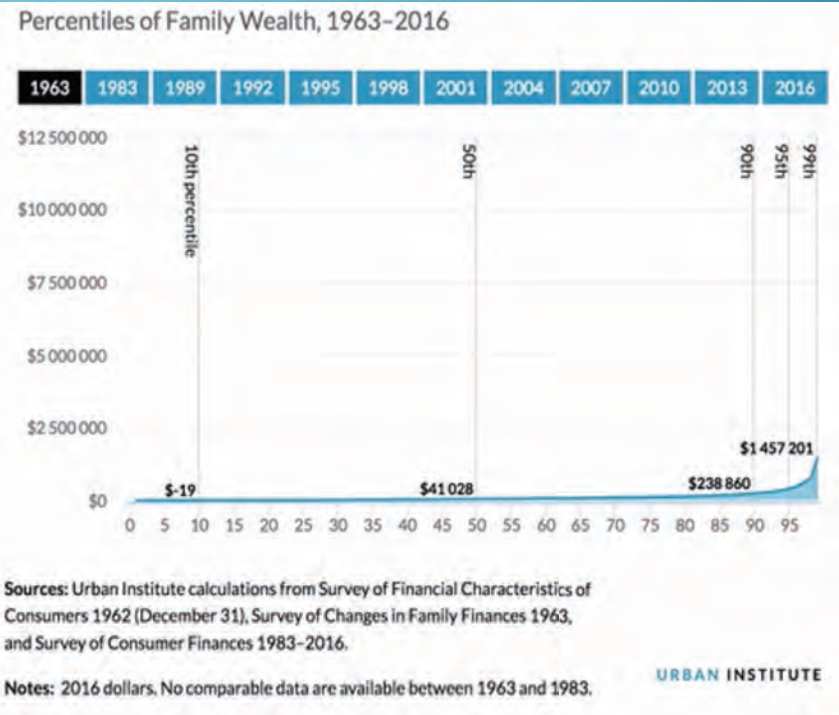
Technological advance can eliminate labor that contributes to **effective demand**

THE TWO HOCKEY STICKS

The past 1,000 years



The past 55 years



Transformation **requires** *law, regulation, rules, enforcement, economic and tax levers ...* i.e., government intervention



The book provides a framework to enable practitioners/students to understand the critical levers of change



Part I: The Multidimensional Concept of Sustainability

1. Concern for a Global Future
2. The Emergence of Sustainable Development

Part II: Economic Development, Globalization, and Sustainability

3. Economic Development and Prosperity: Current Theory and Debate
4. Globalization: Technology, Trade Regimes, Capital Flows, and the Global Financial System
5. Technological Change, Globalization, and Sustainability

Part III: Industrial Policy and the Role of the Firm in Pursuing Sustainable Development

6. The Importance of Technological Innovation
7. The Role of the Industrial Firm in Achieving Sustainable Development
8. Government Policies to Foster Innovation, Economic Growth, and Employment

Part IV: National, Regional, and International Efforts to Advance Health, Safety, and the Environment

9. Regulatory Regimes to Protect Health, Safety, and the Environment: The United States Experience
10. Regional and International Regimes to Protect Health, Safety, and the Environment

Part V: International Trade and Energy

11. Trade Regimes and Sustainability
12. Climate Change and Energy Challenges

Part VI: Strategic Policy Design for Sustainable Transformations

13. Pathways to Sustainability: Co-optimizing Economic Development, the Environment, and Employment and Earning Capacity

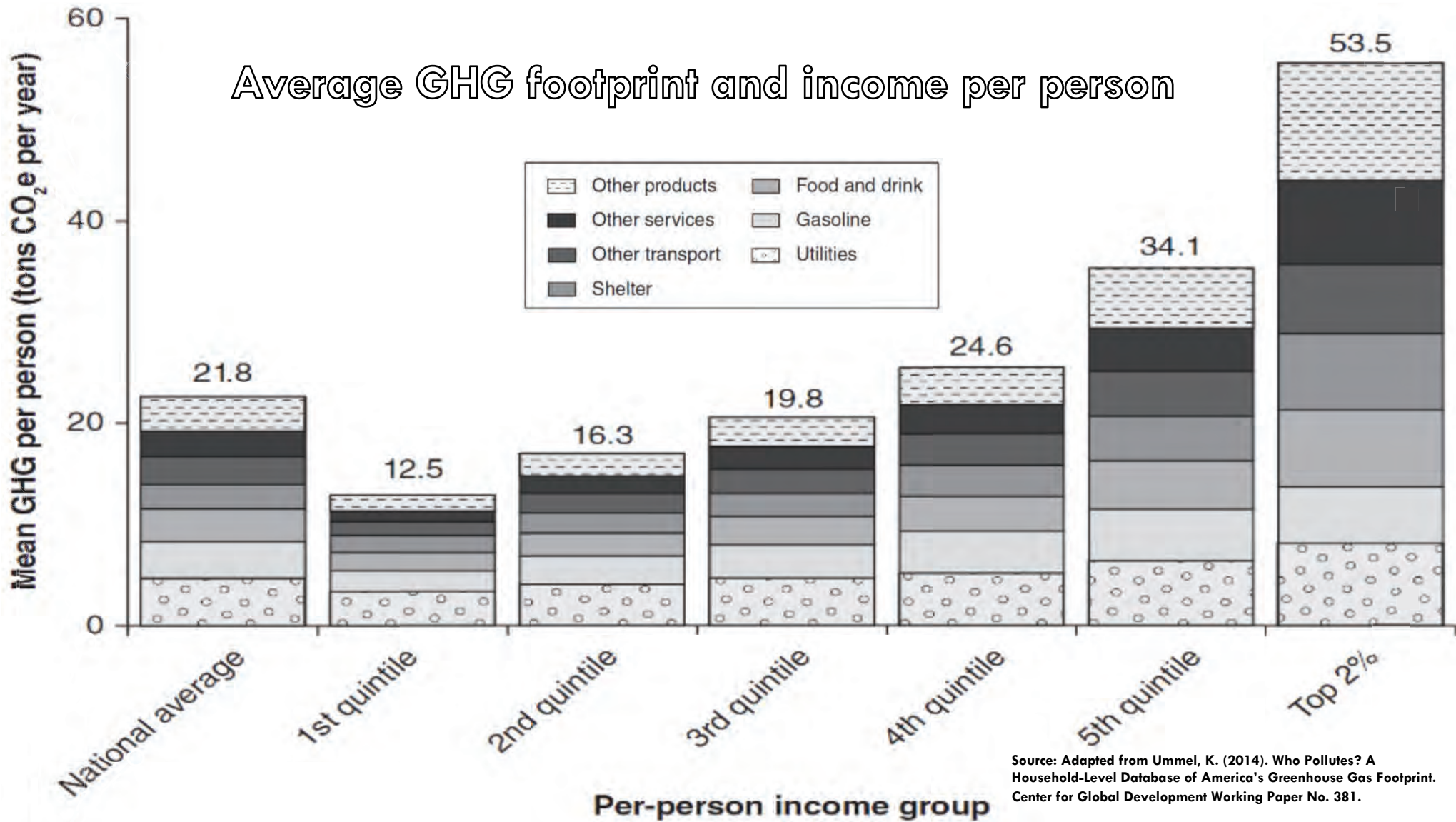


Trans-Pacific Partnership (TPP) and the Transatlantic Trade and Investment Partnership (TTIP)

POLICIES TO REDUCE IMPACTS FROM TRADE AGREEMENTS

- **Use domestic policy to compensate (offset the losses to) negatively affected workers.**
- **Stop pursuing new trade agreements that protect returns to capital while undercutting wages**
- **Re-orient international policy away from regressive trade agreements and toward measures that will benefit workers in the U.S. and in other countries.**

Average GHG footprint and income per person

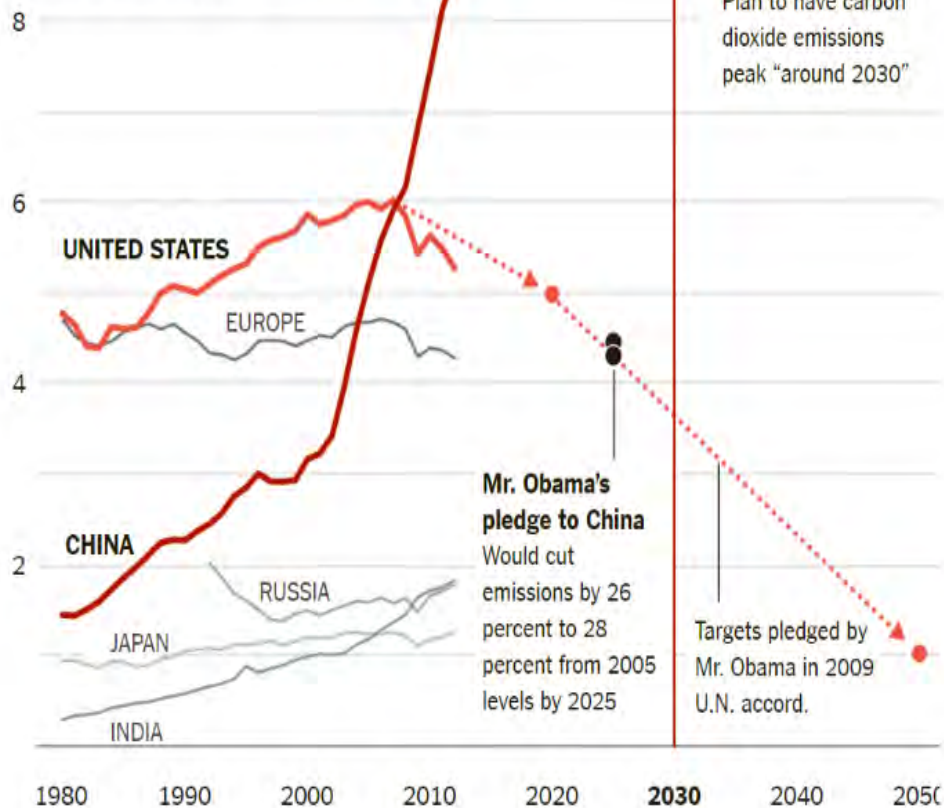


Source: Adapted from Ummel, K. (2014). Who Pollutes? A Household-Level Database of America's Greenhouse Gas Footprint. Center for Global Development Working Paper No. 381.

Climate Goals Pledged by China and the U.S.

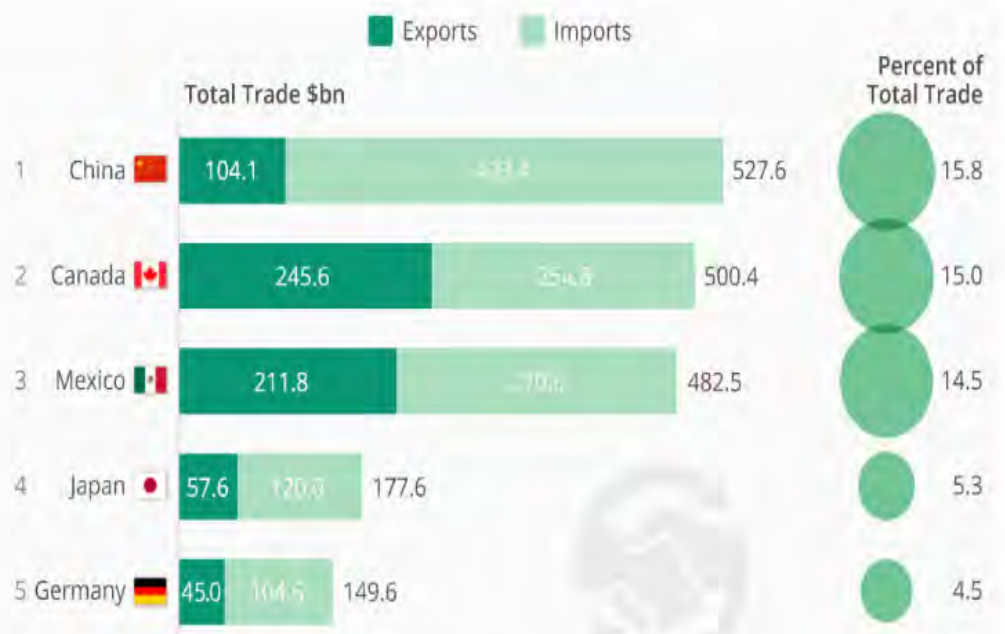
Carbon emissions from energy consumption

Billions of metric tons



Source: <https://www.nytimes.com/interactive/2014/11/12/world/asia/climate-goals-pledged-by-us-and-china-2.html>

Top 5 U.S. Trading Partners for Goods (2016) (\$ billions and % of total trade)



* Year-to-date November 2016
@StatistaCharts Source: U.S. Census Bureau

Source: https://infographic.statista.com/normal/chartoftheday_7749_most_important_trading_partners_of_the_united_states_n.jpg

INEQUALITY IS NOT INEVITABLE, IT IS A CONSEQUENCE OF THE WAY GROWTH IS TAKING PLACE

- **Piketty (2014)** – the main driver of inequality is the tendency of capital return in developed countries to exceed the rate of economic growth, which will cause wealth inequality to increase. [Also Atkinson for the UK]
 - Solution: Redistribution through a progressive tax on wealth
- **Stiglitz (2015)** – misaligned laws, regulations, and institutions have determined unequal shares in the benefits of prosperity
 - Solution: Strengthen workers' rights, raise taxes on capital gains and dividends, and increase transparency in all financial markets
- **Eurofound (2017)** – unemployment has been the main driver of growing inequalities during the Great Recession
 - Solution: The welfare state can prevent a greater increase in inequalities by cushioning growing market income inequalities

FUNDAMENTAL QUESTIONS IN APPROACHING SUSTAINABLE TRANSFORMATIONS

What are the causes of unsustainable industrial systems?

What are the visions for a sustainable future? (open up the 'design space' to achieve multiple goods)

What or who is standing in the way of achieving that future? (open up the 'participatory and political space' for ensuring that all relevant voices have influence in the processes of change?)

What are the carrots and sticks that need to be fashioned to achieve that future?



**Is inequality an inevitable
by-product of economic growth?**

**Will growing inequalities
eventually hinder growth?**

WHY IS GROWTH TAKING PLACE IN ITS CURRENT FORM?

Gilens and Page (2005) “Inequality and Democratic Responsiveness.” *Public Opinion Quarterly* 69(5): 778–796.

- Actual policy outcomes strongly reflect the preferences of the most affluent - there is “virtually no relationship” between policy outcomes and the preferences of poor or middle-income citizens
- Put differently, there is a vast discrepancy in government responsiveness to citizens with different levels of income
- The research revealed the negative effects of inequality on democracy and governance

ALTERNATIVE WAYS OF INCREASING EARNING CAPACITY AND IMPROVING THE ENVIRONMENT

- **Income and wealth transfers to the poor**
 - Progressive changes in the taxation of income and wealth (~Piketty)
 - tax excess profits
 - guaranteed minimum income (UBI)/negative income tax
 - Pay those doing unpaid work such as child rearing/care of the elderly
 - Tax pollution and energy, and reduce the per capita tax on labor
 - Jump start the economy by Keynesian spending
- **Limit the import of goods/services** to increase domestic employment and reduce energy and material content
- **Prohibit elimination of jobs** (~Germany's Kurzarbeit); supplement the shortfall in paid wages during economic downturns
- Increase labor's claim on profits from production/services by **designing work back into production and services.**

ALTERNATIVE INTERVENTIONS, CONT'D.

- Meet *essential* needs of consumers in a different way (**shift to product services; a shared economy thru broadening ownership and investment in social goods**) – lowering consumption, environmental impacts and costs to consumers
- Educate workers/consumers for the economy of the future; **change the nature of demand**
- Encourage the design and production of **essential goods and services** and discourage others – regulate advertising; tax the “bads”
- Invest in **labor-intensive production and services**
- **Adopt a four-day workweek but maintain workpay parity**
- **Change workers into owners** – thru changes in business ownership and corporate structures by allowing them to acquire capital with the (future) earnings of capital (two-factor economics)
- **Tax Corporations that shift production/services/ownership abroad**
- **Extend and expand anti-trust law and enforcement**
- Advance/extend the coverage of labor law to contract and temporary workers
- Strengthen unions and encourage collective bargaining
- Encourage technology bargaining with unions before introducing new technology
- **Subsidize education and health care; and essential goods and services**
- **Change the nature of deficit spending**