Inequality and Poverty: Analysis and Policy

Ninth lecture: Kuznets Waves

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Course web page: http://rszarf.ips.uw.edu.pl/inequality/

Lecture topics

1. Simon Kuznets theory of the relationship between inequality and average income (inverted U) in light of Thomas Piketty and Branko Milanovic contributions
2. Pre-industrial inequality with stagnant mean income and inequality
3. Industrial inequality with clear increase in mean income and Great Levelling
4. Post-industrial inequality with still growing income but new increase in inequality
5. The future of mean income and inequality relationship: new Great Levelling with benign and/or malign forces?
6. Summary

There are two separate strands in the literature about inequality and poverty explanations

EXPLANATION OF DISTRIBUTION OF INCOME (OR OTHER VARIABLE IMPORTANT IN LIFE) IN SOCIETY

- **Explanantions of distributions of what is important in life and life chances within societies**
- The main question is **why some people are much richer than others, why some are much poorer than others in particular dimension (most often income and wealth)?**
- One popular explanation for economic inequality is that **humans with higher human capital (e.g. skills) has a higher incomes and wealth** (there is a positive corelation between human capital and economic variables)

Previous lecture

EXPLANATION OF THE RELATIONSHIP BETWEEN AVERAGE INCOME AND INEQUALITY

- **Explaining the relationship between average income and the level of inequality in societies over the long term**
- The main question is **why in some period there was a postitive correlation (average income goes up, inequality goes up) and in other period there was a negative correlation (mean income goes up, inequality goes down)?**
- First explanation was proposed by **Simon Kuznets** (two sector model)

Simon Kuznets contribution to research on inequality

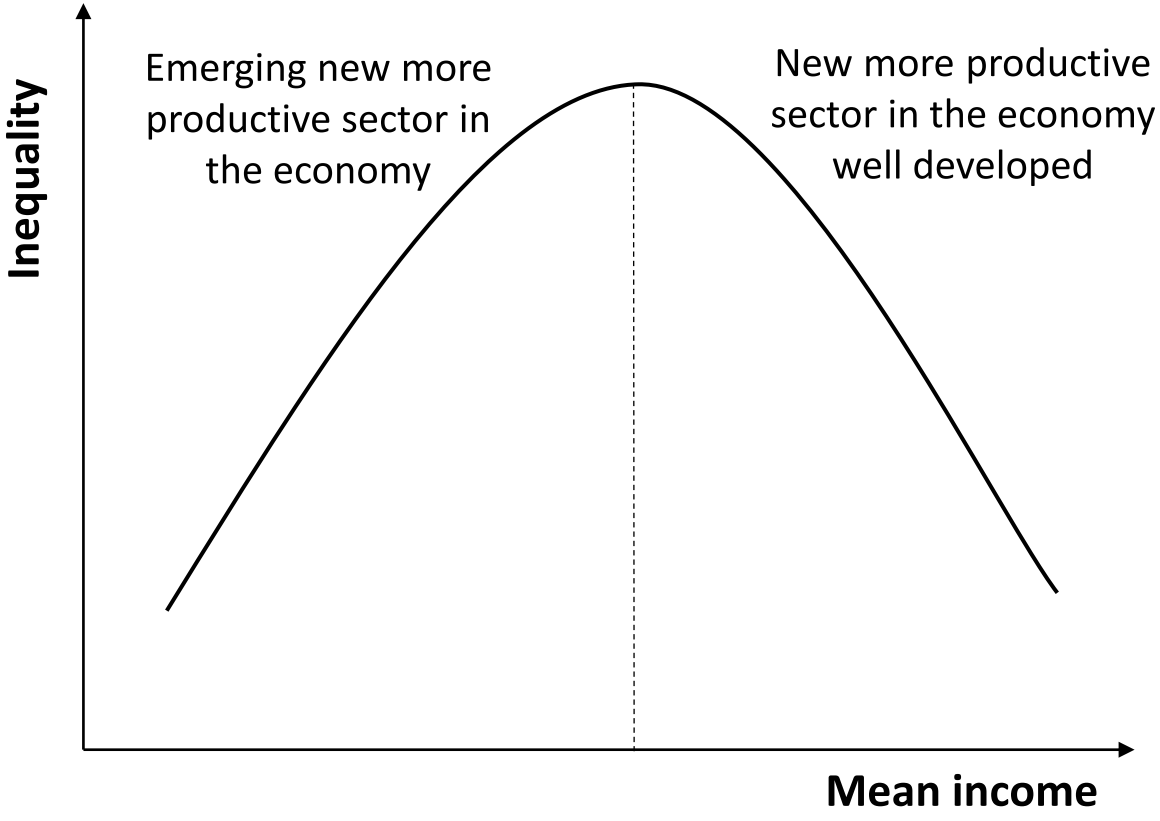
> *The basic procedure is to compare the number and income of persons represented on federal income tax returns with the total population and its income receipts.[. . .] Since, except for a few recent years, tax returns cover only a small fraction of the total population—the fraction at the highest income levels—our estimates of income shares are only for a small upper sector. From the same source we can, with certain limitations, carry through the comparison for various types of income.*
>
> ***Kuznets (1953, p. xxix)***

- **Data**: income series from US tax administration (1913-1948). In 1913 US introduced personal income tax
- First problem was that only a fraction of US population started to pay taxes. It was difficult to calculate overall distribution
- Kuznets combined data from other sources and calculated "**the share of total personal income earned by top income groups**" and computed this for the whole period year by year
- Result: **top income shares had fallen sharply since the First World War**, but why?

Simon Kuznets, *Shares of Upper Income Groups in Income and Savings*, 1953

Simon Kuznets, *Economic Growth and Income Inequality*, 1955

Kuznets explanation – inverted U curve and two sectors



Explanation with two sectors of economy:

- old agricultural – **less productive**
- new industrial – **more productive**

RISE IN INEQUALITY: when new more productive sector is emerging and small then people employed there have higher incomes than those in the old sector (left part of the chart)

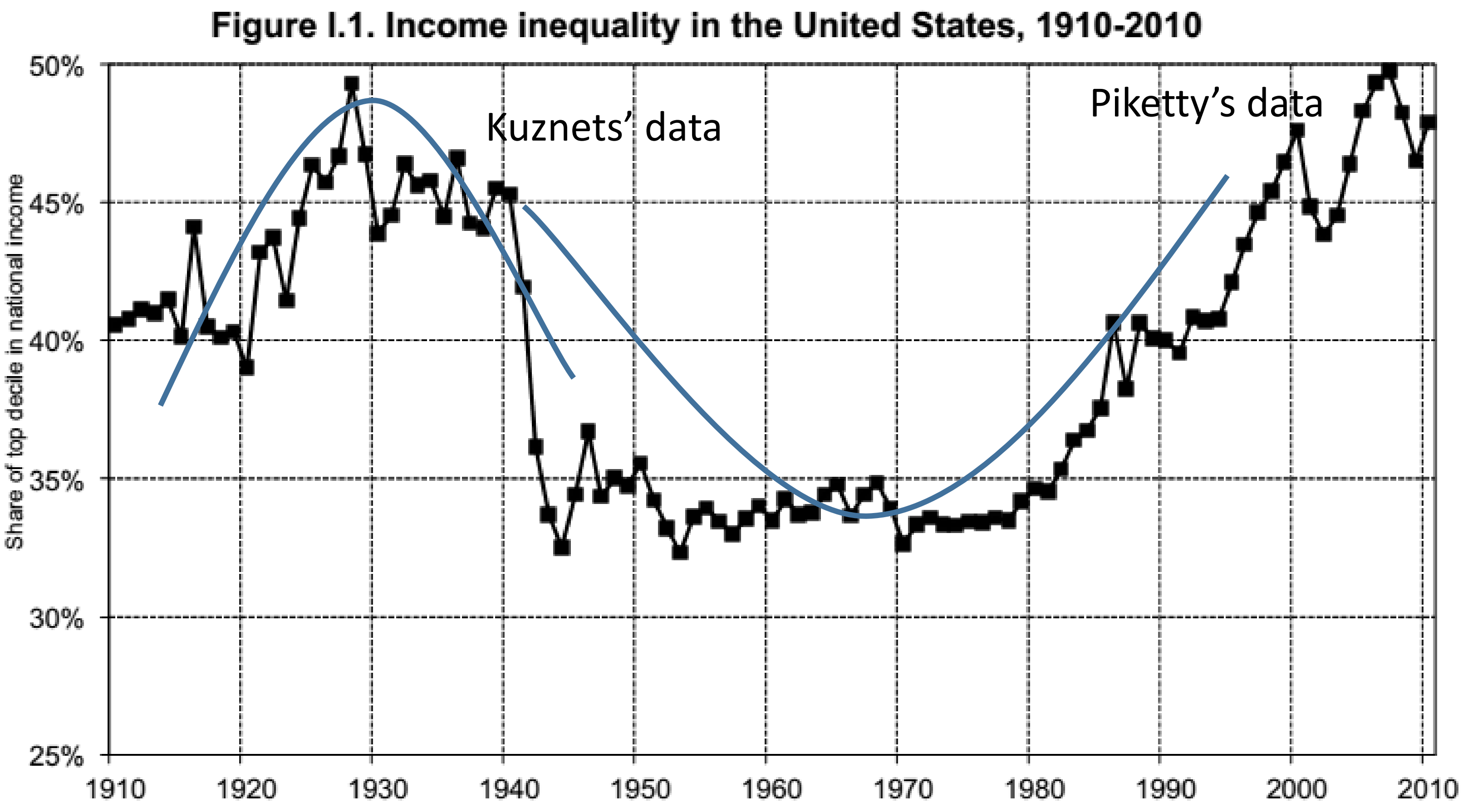
DECLINE IN INEQUALITY: When the new sector attracts more and more people in result inequality gradually is going down (right part of the chart)

Thomas Piketty’s and Branko Milanovic contributions

Thomas Piketty contribution

- **Data**: income series delivered by tax authorities but **from many countries and for longer periods** related not only to income, but also to capital
- Results
  - **Top income shares and other measures of inequality going up during the last 30-40 years**
  - Studies about the **relationship between income inequality and economic development shows no general pattern**
  - **Trend in the 20th century is U-shaped not inverted U as Kuznets predicted**
- Conclusion: **Kuznets was wrong** – **there is no automatic mechanism that reduces inequalities in pace with economic development**

Inverted U curve and U curve from Piketty's data



The top decile share in U.S. national income dropped from 45-50% in the 1910s-1920s to less than 35% in the 1950s (this is the fall documented by Kuznets); it then rose from less than 35% in the 1970s to 45-50% in the 2000s-2010s. Sources and series: see piketty.pse.ens.fr/capital21c.

http://piketty.pse.ens.fr/files/capital21c/en/pdf/F0.I.1.pdf

Four empirical insights from Piketty with r>g

- Much of the change in the income share of the top 10 percent **is driven by changes in the top one percent**
- Much of the **decline** that took place in the 20th century is (at least in certain countries) **driven by specific shocks which in turn affect capital income**
- In recent decades, top income shares **have risen dramatically in certain countries** (USA), **while others have seen much more modest increases** (France)
- Where the rise is greatest, it **is driven primarily by wage income rather than capital income**

See short intro to Piketty's famous book: The short guide to Capital in the 21st Century, excerpt about r>g: „Since r [the rate of return on capital] is usually larger than g [the rate of nominal economic growth], **the wealthy get wealthier**. **The poor don't necessarily get poorer, but the gap** between the earnings power of **people who own lots of buildings and shares** and the earnings power of **people working for a living will grow and grow**"

Branko Milanovic's framework

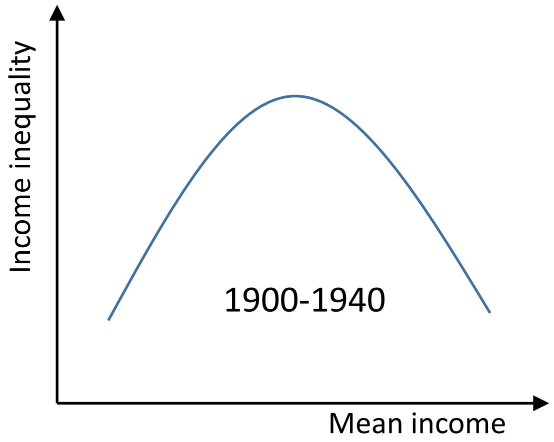
- **Framework similar to Kuznets**: economic inequality and the mean level of income
- Period of the last 500 hundred years with three sub-periods
    1. **Before Industrial Revolution** (mean income is stagnant)
    2. **After Industrial Revolution until Reagan-Thatcher governments in 1980s** (mean income is going up)
    3. **Most recent period** (mean income is going up)
- General description of the data: **Kuznets Waves**
- Theory: **benign (welfare) and malign (warfare) forces**

Here and below source is mainly: B. Milanovic, *Global Inequality: A New Approach for the Age of Globalization*, 2016. His own presentation of the book

Kuznets, Piketty and Milanovic – comparison of inequality trends

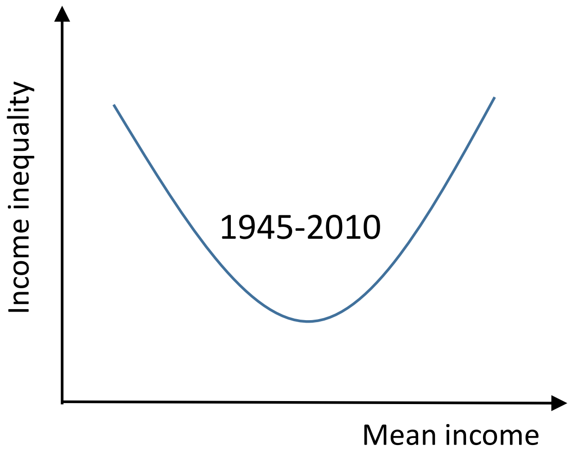
Inequality increase as anomaly

Kuznets hypothesis



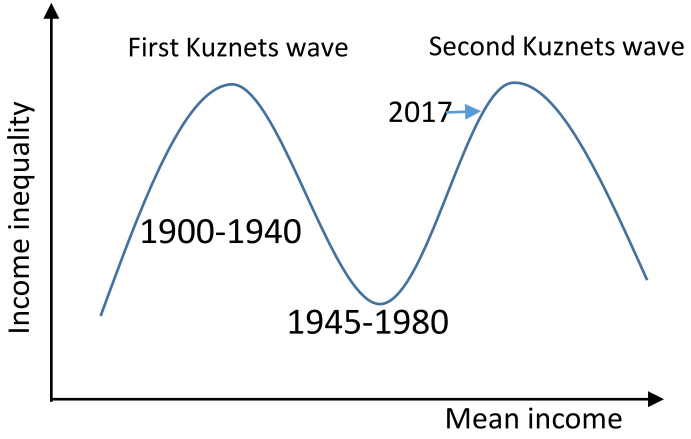
Inequality decrease as anomaly

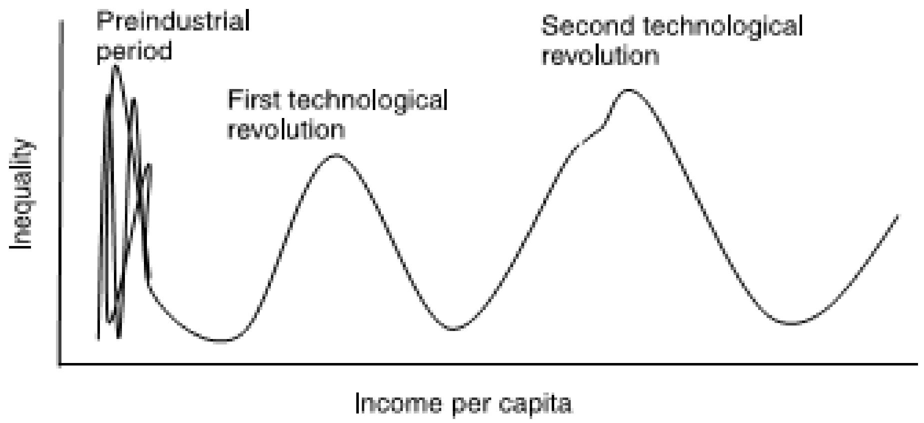
Piketty hypothesis



Inequality increase and decrease in a sinusoid-like pattern

Milanovic hypothesis





B. Milanovic, *Global Inequality: A New Approach for the Age of Globalization*, 2016

Kuznets waves – preindustrial phase

BEFORE INDUSTRIAL REVOLUTION – mean income stagnant, pre-industrial societies

EPIDEMICS

It kills indiscriminately all, but if those in poverty are more than those in affluence we can expect impact on inequality

NEW DISCOVERIES

Colonization of the Americas and discoveries of new trade routes between Europe and Asia – influx of the wealth e.g. gold from abroad and it goes to the wealthy, inequality should rise

INVASIONS

If invaders are succesful then there is distribution of benefits taken by looting those invaded and the distribution of loses within those invaded

WARS

The mechanism of influence on inequality is destruction of the capital, in terms of **distribution of costs of war**

- **either most of the costs are borne by the rich and inequality decreases** or
- **the income of the poor falls below the subsistence level, in which case population drops** (that is less likely solution or less preferable: population decline is bad for rulers and the rich in terms of wages and in terms of military force)

Malthusian waves

- Thomas Malthus (1766-1834) proposed the theory which connects demographic factors, wages and poverty
    1. Higher mean income and lower inequality (with **real wages going up**) triggers
    2. a **population increase among the poor that**, in turn,
        1. **reduces their wages**,
        2. **pushes inequality up**, and
        3. **checks further population growth**
- **Mechanism**: real wages increase => poor population increase => more workers => reduction in the real wages => poor population decrease => real wages increase => poor population increase…

Empirical illustration of the plague effect on prices and real wages in England

„The pre-existing deadlock situation of a maximum population with minimum living standards [Malthusian waves] had been replaced by something entirely different"

Figure 15. *Harvests, prices (inverted), and nominal and real wages, 1340–59*

But is seems that first wave was raising from 1290… in England

Kuznets waves – first industrial phase with Great Levelling

INDUSTRIAL REVOLUTION – mean income and wages goes up systematically: industrial societies

- Why inequality first rised?
  - **Structural change in economy** (movement into a much more diversified and productive manufacturing sector as Kuznets explained)
  - **Urbanization** (more and more peole movig from poor rural to less poor urban areas)
- Why inequality started to decrease? **GREAT LEVELLING by**
  - **WELFARE - Benign mechanisms** resulting from economic and demographic forces
    - The **supply of more-educated labor** the **demand for redistribution increased**
    - and **return on capital went down** (return on capital was always closely associated with higher inequality)
  - **WARFARE - Malign mechanisms** (negative events e.g. war, revolution)
    - **Wars** through destruction of capital and higher taxes
    - **Revolutions** i.e. civil conflict/war and resulting state breakdown, looting, destruction of capital

Traditional and modern theories explaining Great Levelling (GL)

TRADITIONAL THEORIES (Kuznets, Jan Tinbergen)
The GL as a product of various economic forces:

1. a gradual **end to the structural transformation** whereby most of the population moved into urban areas (urbanization) and into manufacturing (industralization), thus **eliminating the rural/urban gap** that is one of the important contributors to inequality
2. **increased schooling**, which **reduced the education premium**
3. **the aging of the population**, and thus **greater demand for social services** (social security, nationalized health) **which in turn required greater taxation of the rich**
4. the **need for greater social cohesion in the context of wars**, including the **Cold War**, which meant that financing of wars should fall mostly on the rich

MODERN THEORIES (Piketty)
The GL as a product of a political factors not economic ones:

1. the **two world wars** not only led to **higher taxes** but also **destroyed property** and **reduced large fortunes**
2. **ensuing "shock" of socialist and communist parties** that, thanks to their new-found political influence, introduced much **pro-labor legislation**

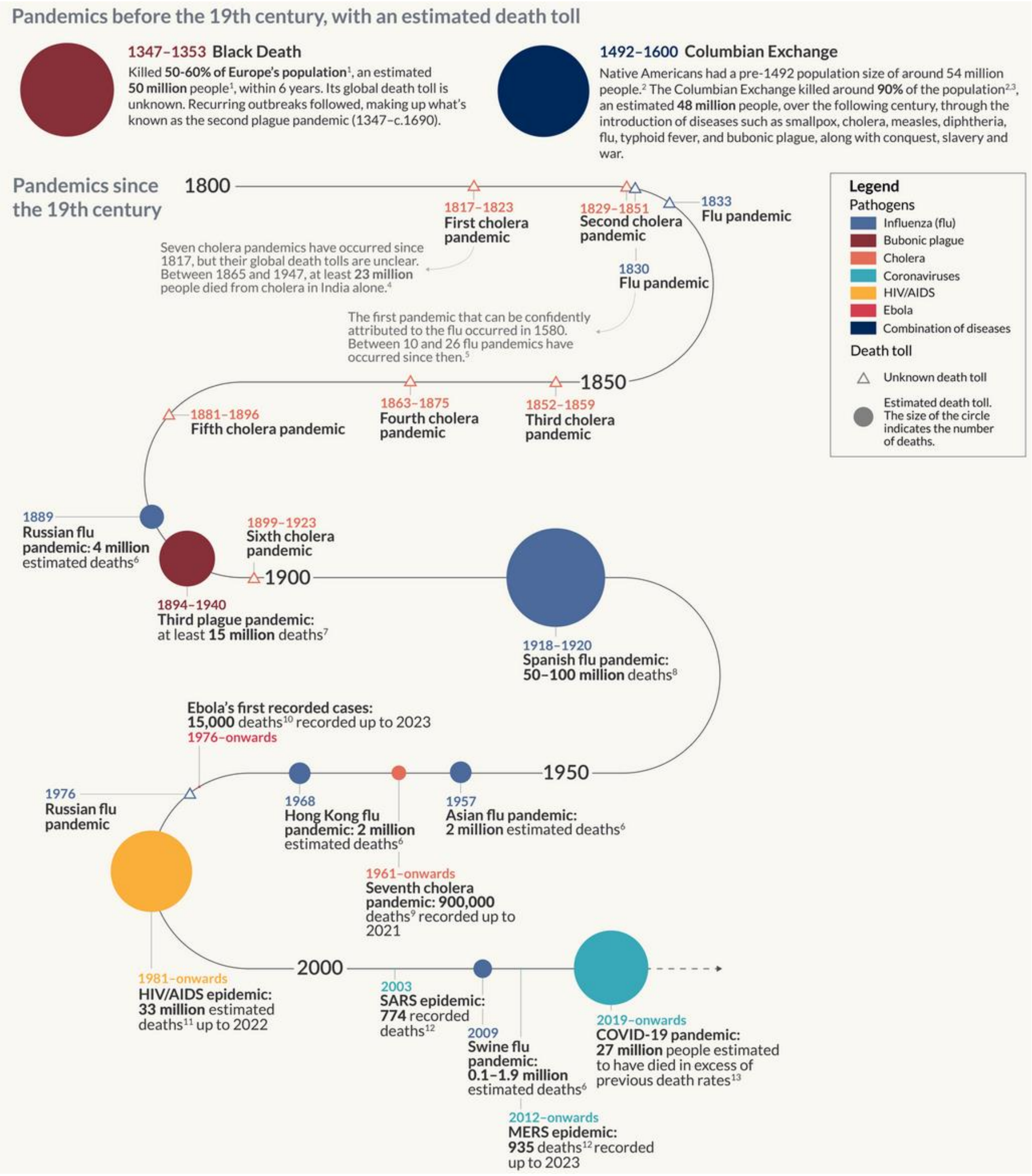
Can inequality only be fixed by war, revolution or plague? A book excerpt and interview with **Walter Scheidel**, author of ***The Great Leveler: Violence and the History of Inequality from the Stone Age to the Twenty-First Century***… „throughout history, economic inequality has only been rectified by one of the "**Four Horsemen of Leveling**": **warfare, revolution, state collapse and plague**"


WARFARE
REVOLUTION
STATE COLAPSE
PLAGUE
FOUR GREAT LEVELERS

Pandemics before and after 19th century and explanation of their impct on inequality

How to explain impact od epidemics and pandemics on income inequality even in recent times?

1. Epidemics and pandemics can increase income inequality because the **health crises lead authorities to take actions that disproportionately affect lower-income individuals**, such as stay-at-home orders, restrictions on in-person work, and business shutdowns.
2. These crises have a **greater health impact on poorer communities due to factors like higher population density, worse diets, and pre-existing health conditions**. Lower-income individuals are less able to work remotely during these times.
3. **School closures during epidemics/pandemics can widen educational achievement gaps between poorer and more affluent students**.
4. Larger corporations with online operations are better positioned to weather economic slowdowns caused by health crises **compared to smaller businesses that may be forced to shut down**.
5. **Lower interest rates and economic stimulus measures in response to epidemic-induced slowdowns can increase wealth inequality by boosting asset prices and enabling home purchases**, benefiting asset owners more than others.



Summary based on article *Epidemics, pandemics and income inequality*

Socialist and capitalist Great Levelling

SOCIALIST GREAT LEVELLING

Education and property ownership, the two most powerful determinants of income in market, were made irrelevant

1. **Nationalization** caused wage compression (between low-skilled and high-skilled), and influenced income distribution by abolishing income from property (including land property) and eliminating entrepreneurial return
2. **Guaranteed jobs** and thus the absence of unemployment (with a few exceptions)
3. **Widespread retirement and disability pensions** by increasing coverage of social protection
4. **Subsidization of staple goods** (low prices)

WESTERN GREAT LEVELLING

Development of the redistributive policy system with strong trade unions fighting for higher wages

1. **Higher taxes on the rich** (progressive income taxation)
2. **Welfare state in transfers** (retirement and disability pensions, family benefits) **and services (health care, education)**
3. **Unionization** i.e. high share of workers are members of trade unions, which had an impact on wages

Socialist policies – Milanovic verdict

- Evaluation of the socialist experiment
  - In terms of **inequality reduction, undoubtedly success**
  - But in terms of **growth and innovation, failure**
    - Reduction of productivity because of equalization of wages so lower incentives for acquiring new skills and hard work
    - Reduction of technological progress because of centralization is not good for innovation
- Three lessons from experiences of socialist states
  1. **There are limits to voluntaristic policies** whereby inequality is reduced out of step with economic conditions
  2. **Equality can be pushed too far**: it discourages hard work, education, and innovation
  3. **Ideology matters**, and, contrary to the claims of modern institutionalists concentrated political power does not necessarily entail concentrated economic power

Macroeconomic evidence for socialist countries: relatively lower level of GDP per capita growth in 1970s and 1980s

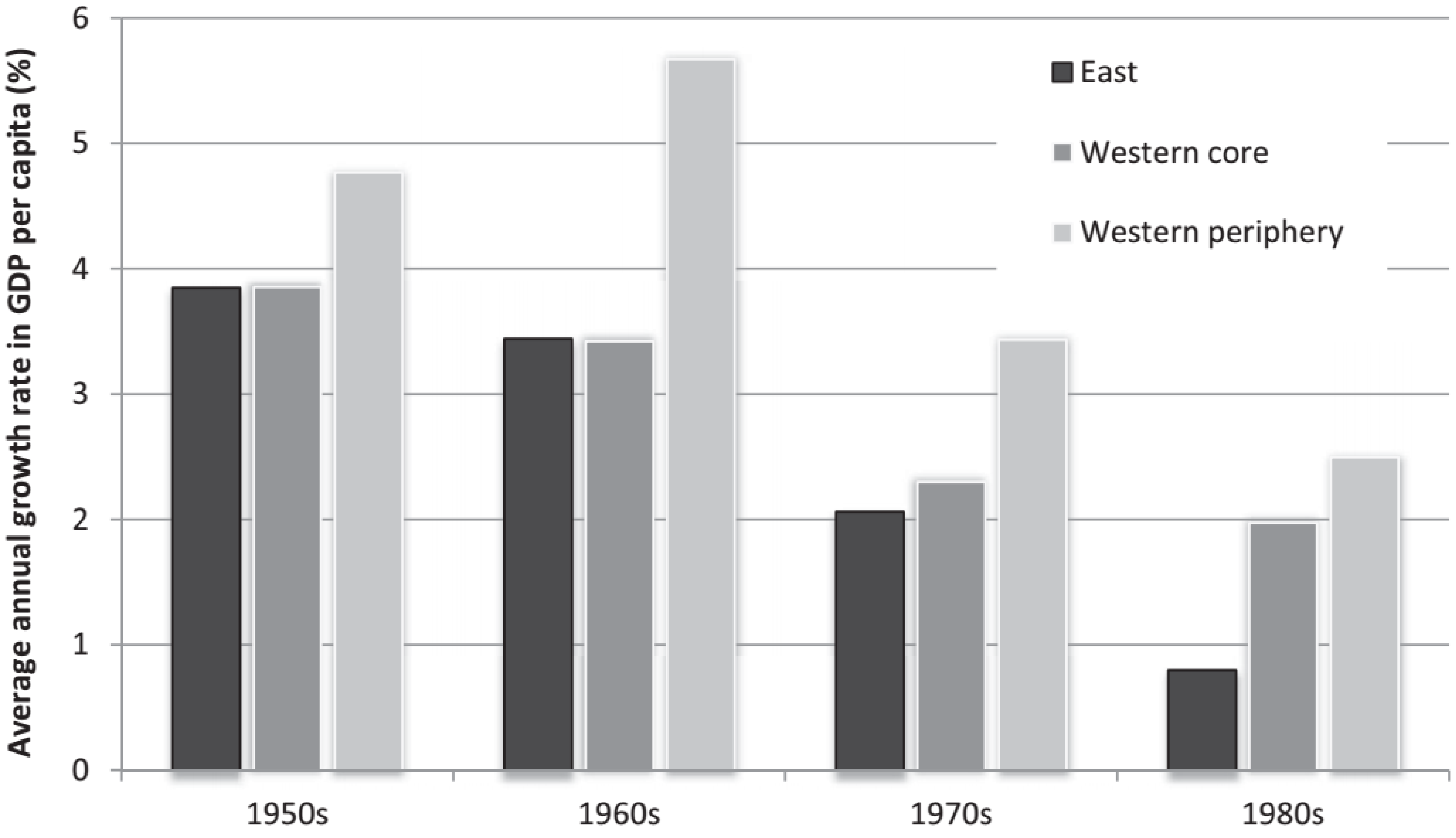


Figure 1. *Economic growth in Europe, 1950–89*

Notes: East: Bulgaria, Czechoslovakia, Germany (East), Hungary, Poland, Romania, the USSR, and Yugoslavia; western core: Austria, Belgium, Denmark, France, Germany (West), the Netherlands, Norway, Sweden, Switzerland, and the UK; western periphery: Finland, Ireland, Greece, Italy, Portugal, and Spain.
Source: Own calculations. Data from Conference Board, *Total Economy Database* (GDP in 1990 Geary–Khamis dollars).

T. Vonyo, *War and Socialism: Why Eastern Europe fell behind between 1950 and 1989*, 2017

Kuznets waves – second industrial phase with increase of inequality

SECOND TECHNOLOGICAL REVOLUTION – mean income goes still up but wages growth slowed down: postindustrial societies

- Three factors as determinants of the inequality upswing
  1. **TECHNOLOGY: Remarkable changes in information technology**
     - Strongly rewarded more highly skilled labor; drove up the share of, and the return to, capital (**Skill-biased Technological Change**)
  2. **Globalization**
     - Increasingly opened the economies of rich countries to competition from China and India which resulted less inequality between countries and more inequality within countries
  3. **SERVICE SECTOR: Rising importance of heterogeneous jobs in the service sector**
     - Staffed by less qualified and worse-paid labor. On the other hand, some service sector jobs, as in finance, were extremely highly paid
- What is reinforcing for these trends?
  - **Pro-rich policies** e.g. reducing marginal income taxes for the rich

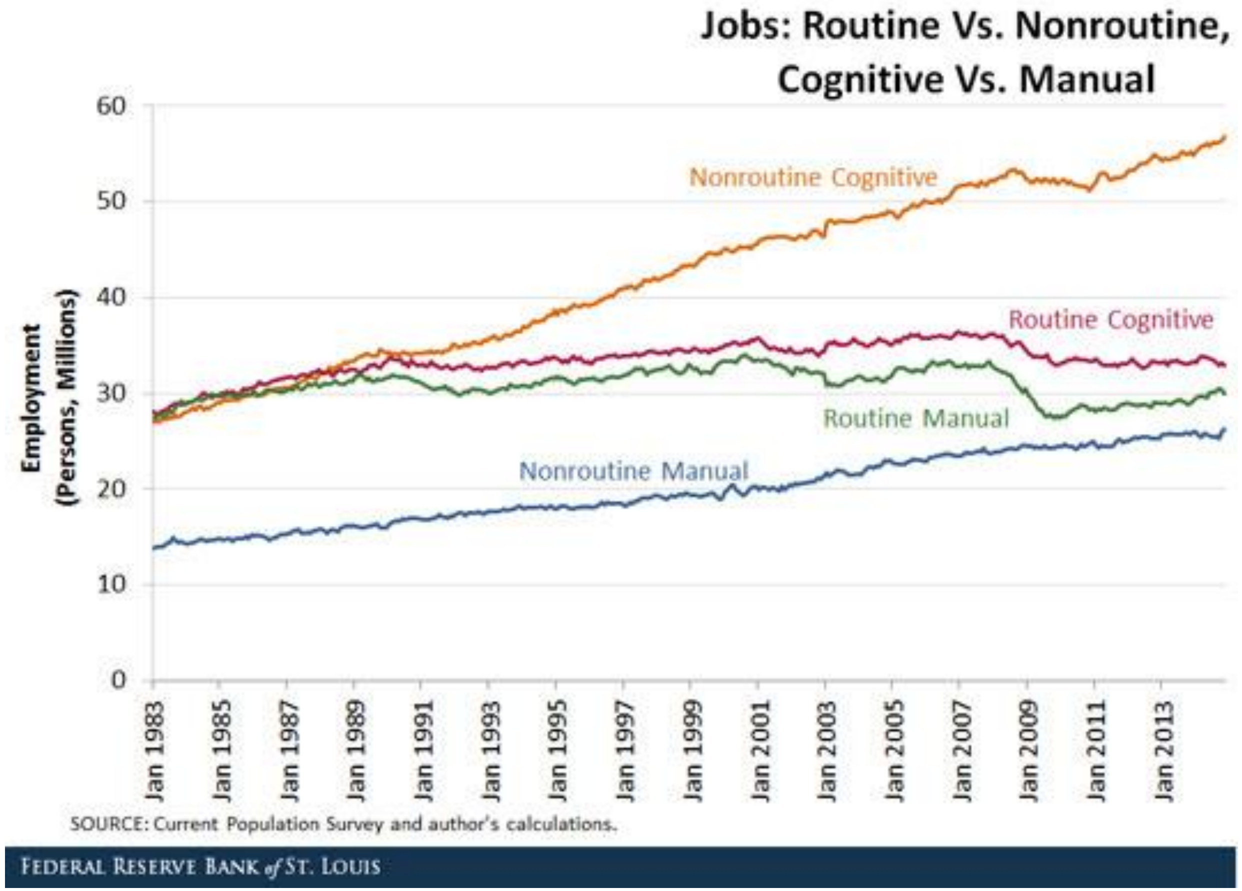
Detailed list of explanatory factors for new increase of inequality

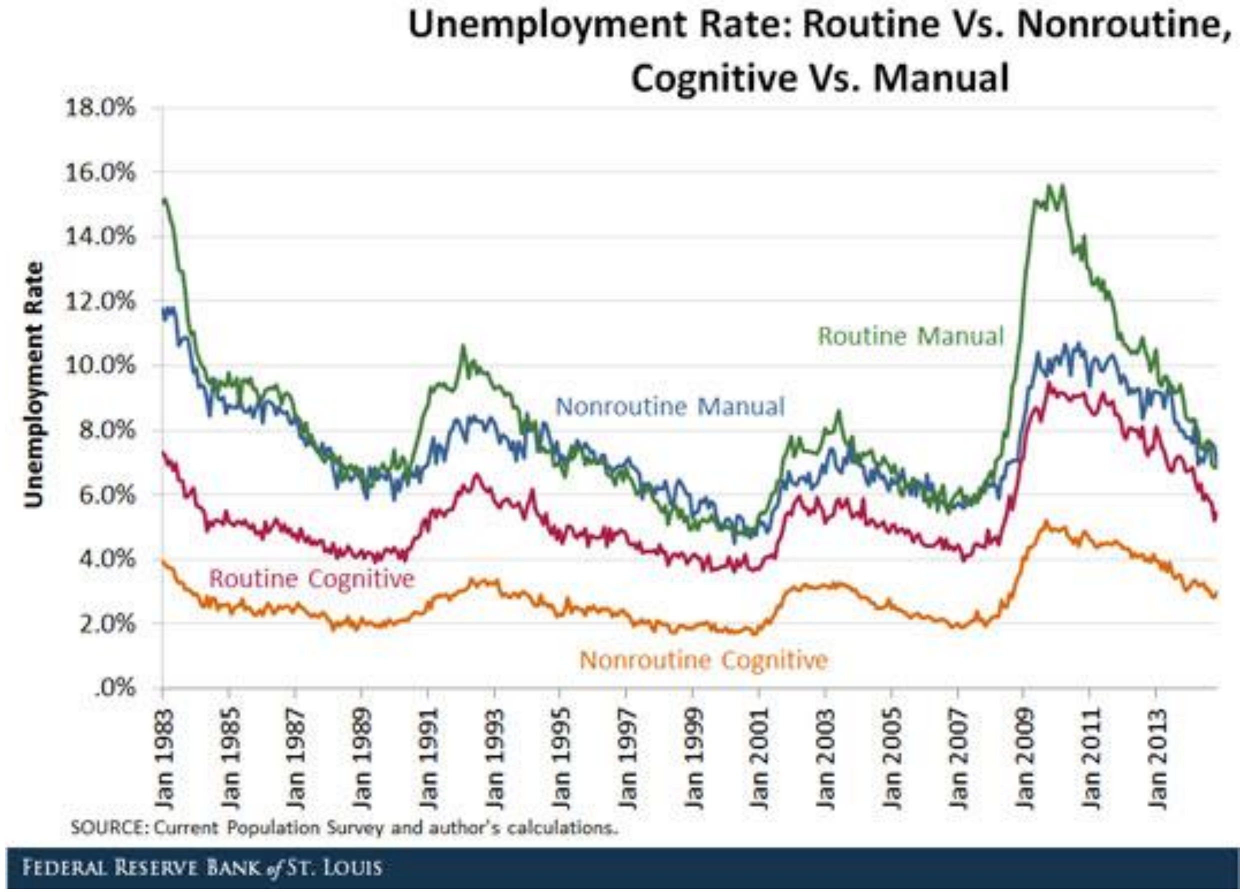
- **High skill-biased technological change and globalization** and resultuing international competitiveness
  - **(existence of cheap labor in China and the rest of Asia ⇒) lower price of capital goods ⇒ technological change ⇒ replacement of routine (manual and cognitive) labor**
- **The role of capital income** (both its rate of return and the increasing capital-income ratio)
- **Pro-rich policies**: reduced marginal tax rates on the highest incomes and lower taxes on capital (including tax avoidance by tax havens and other means)
- **Behavioral changes**, such as the greater prevalence of assortative mating, or homogamy; marriages between partners who both have high skills and high incomes
- **Vaguely defined changes in ethical or pay norms**, which allow for much wider gaps between the pay of top managers and average workers
- **The greater influence of the rich on the political process** and thus on rule-setting favorable to themselves (*Study: Politicians listen to rich people, not you*)

Pro-rich technological change

- The main characteristics of the technological change
  - **Technological progress as capital-driven**
  - **Embodied in machines**
  - **Demand for high and low skills**
    - **Complementing high-skilled labor** (and thus raising the wage premium) and/or
    - **Replacing low-skilled labor** and thus producing the same effect of increasing the wage gap
- All those factors seems to be **pro-rich technological change:** rising incomes and wealth of those who have capital **in the physical form** or **in the form of skills**

Evidence for diminishing of routine manual and cognitive jobs



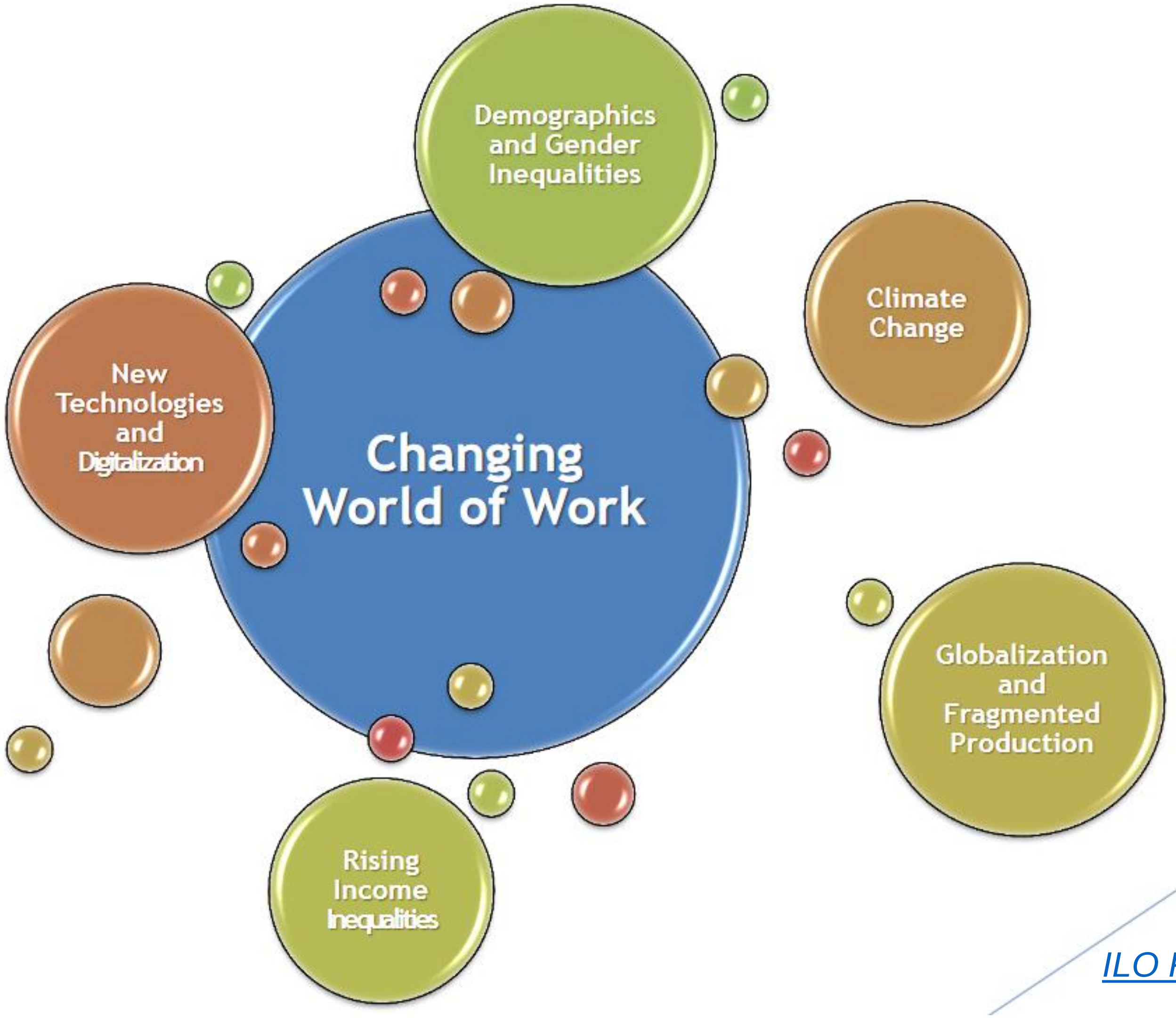


What about nonroutine cognitive jobs after ChatGPT type AI?

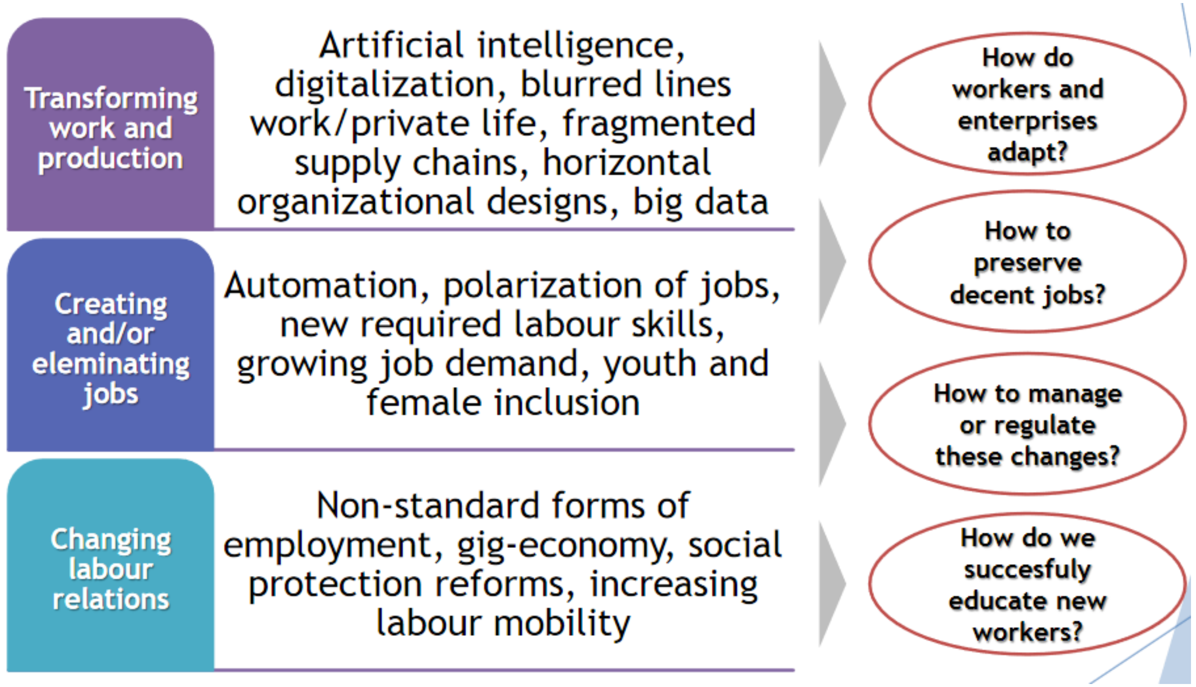
Jobs Involving Routine Tasks Aren't Growing, 2016

Goldman Sachs says generative A.I. could impact 300 million jobs — here's which ones

Thinking about changes in the world of work



How this might affect the world of work?



ILO Future of Work Centenary Initiative, 2017

Impact of COVID-19 on labour market in EU

Impact of generative AI on labour market

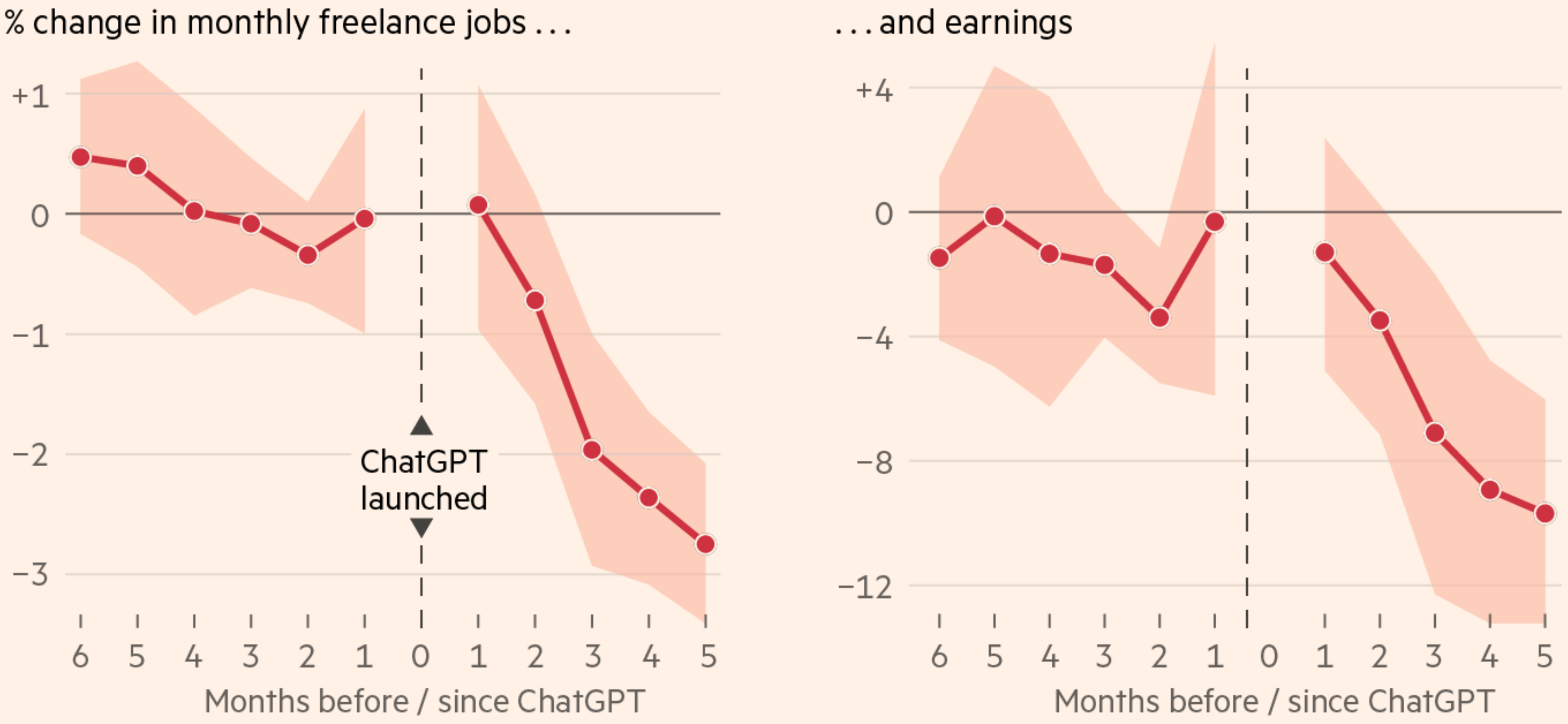
„**Worsening Inequality**: **Generative A.I.**. They give bullies tools risk perpetuating and exacerbating systemic biases such racism as sexism and abusers new ways to harm victims, and, if their widespread deployment proves consequential, risk significantly accelerating economic inequality”

D. Accelerating Economic Inequality

- I. research and development work is concentrated within Big Tech companies, with the five largest – Amazon, Google, Microsoft, Facebook, and Apple – employing an army of 33,000 A.I. researchers. Already 70% of A.I. Ph.D.'s go to work for the corporate sector; 20 years ago, only one fifth did so. This concentration in the corporate sector, as opposed to academia, means developing commercial use-cases for the technology is prioritized over public-interest use-cases that may be broadly beneficial but less profitable. This structural problem aligns A.I. development with interests concentrating corporate wealth.
- Economists Anton Korinek and Joseph E. Stiglitz argued in a 2017 paper that the primary challenge of widespread A.I. adoption is income distribution. They predicted that, like globalization, A.I.-driven automation would leave large numbers of workers worse off while the industry responsible for the disruption – whether outsourcing or automation – would gobble up a disproportionate amount of the surplus profits. In addition, ripple effects would leave various sectors unrelated sectors of the economy worse off, in much the same way all sectors of the economy suffered in de-industrialized manufacturing towns in the Rust Belt following passage of the North America Free Trade Agreement.
- OpenAI CEO Sam Altman appears to be well aware of the potential for generative A.I. to accelerate inequality. In 2021, he wrote a manifesto predicting the widespread deployment of A.I. “If public policy doesn't adapt accordingly, most people will end up worse off than they are today,” he wrote, predicting an “unstoppable” technological revolution and urging the adoption of a universal basic income-type policy based on taxing business assets.

Generative AI is already taking white-collar jobs and wages in the online freelancing world

Change in employment and earnings from writing and editing jobs on an online freelancing platform after the launch of ChatGPT



Source: *The Short-Term Effects of Generative AI on Employment: Evidence from an Online Labor Market (Hui et al, 2023)*

Applying AI to Rebuild Middle Class Jobs

David Autor

„My thesis is not a forecast but an argument about what is possible: **AI, if used well, can assist with restoring the middle-skill, middle-class heart of the US labor market that has been hollowed out by automation and globalization**"

„Amid a deluge of press reports on the impending AI robocalypse, one could easily fail to notice that the industrialized world is long on jobs and short on workers. The question is not whether we will have jobs — we will — but whether these will be the jobs we want"

Pro-rich policies and the welfare state

- What are pro-rich policies?
  - Reducing tax rates on high personal incomes
  - **Taxing capital income at a lower rate than labor income** (reduction of corporate income tax)
- Are pro-rich policies explained by **dissatisfaction from the welfare state**?
  1. Official reason for pro-rich tax policies established: bloated welfare state
  2. What happened: size of the welfare state intact or changed a little
  - Conclusion: pro-rich tax policies **established for other reasons than diminishing the size of the state**, better explanation is **ICT and globalisation making control and tax of capital very difficult**

Why redistribution was not effective in reduction inequality growth?

- Pro-rich policies mean **weaker or stable redistribution** (reduced marginal taxes, lower generosity of transfers etc.)
- Increase in market income inequality as a reflection of
    1. higher wage dispersion
    2. greater concentration of income from capital
    3. association of high incomes from both capital and labor in the same individuals
    4. increasing homogamy in higher income and skill classes
- And the result is: **Redistribution became slightly more important, or more progressive, but it failed to offset the underlying increase in market income inequality**

For an explanation of **redistribution failures in emerging democracies** see lecture 11

What about the future of inequality? New Great Levelling?

- Political changes that may produce higher and more progressive taxation
- **Rising skill premium could be closed**, especially in the United States, could be closed by the rising supply of highly skilled workers
- **The dissipation of rents from technological revolution**. The revolution progresses, other people and companies catch up with the early innovators, rents are reduced or eliminated
- **Income convergence at the global level**, with wages in China and India rising to come close to those in today's rich countries
- **Low-skill-biased technological progress**: as high-skilled labor gets relatively more expensive, there must come a point where production conducted with less-skilled labor becomes more efficient (and generative AI seems to be a threat for high-skilled workers tasks and jobs)

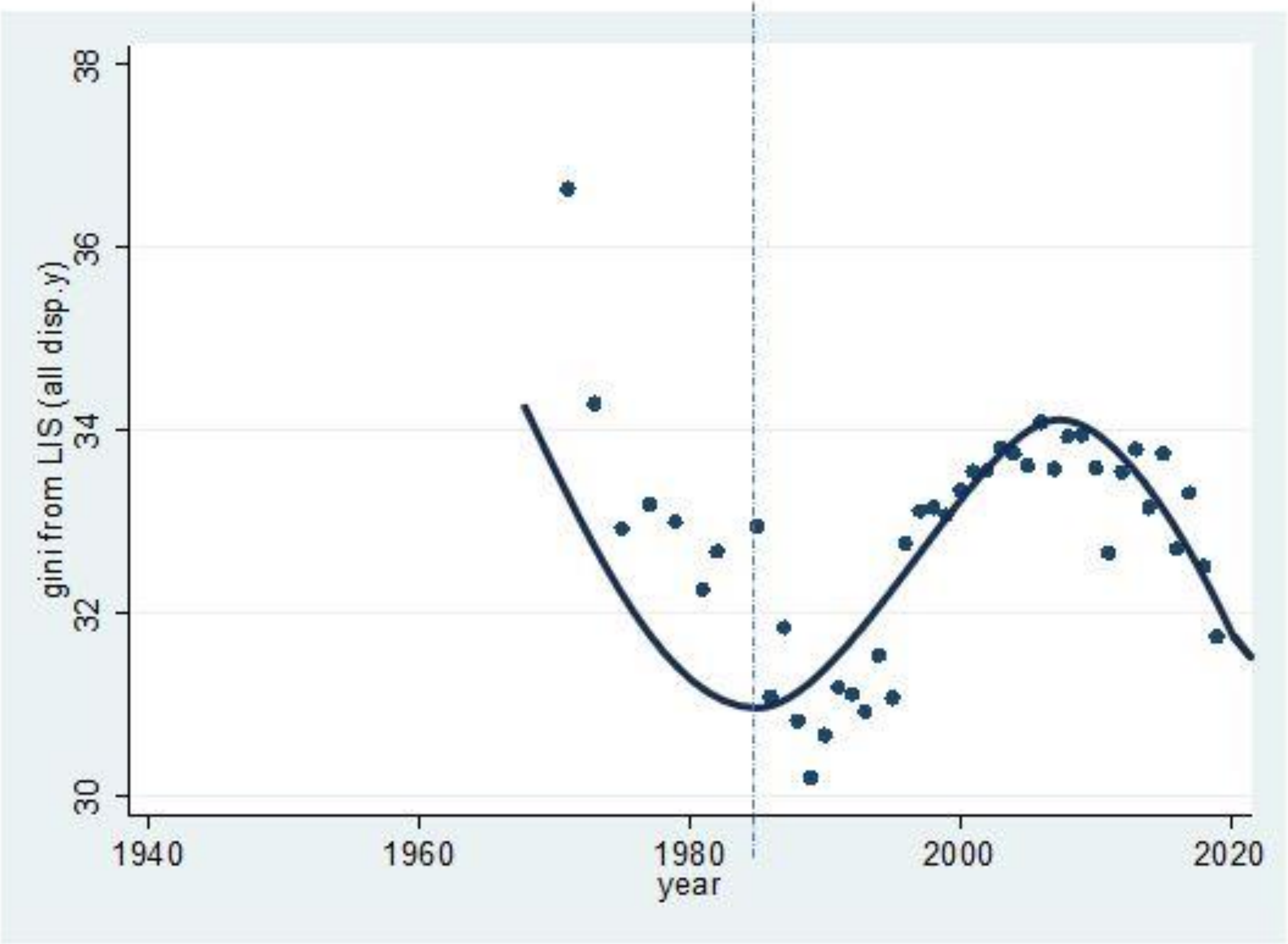
See also: *Branko Milanovic writes that the coronavirus is reminding some of the world's privileged what it is like to experience its daily stigmas… Economic history shows **epidemics are great equalisers**.*

New Great Levelling in US now?

„The collage of evidence above leads us to tentatively conclude that the pandemic increased the elasticity of labor supply to firms in the low-wage labor market, reducing employer market power and spurring rapid relative wage growth among young non-college workers who disproportionately moved from lower-paying to higher-paying and potentially more-productive jobs”
[*The Unexpected Compression…*]

… and in Canada

Kuznets waves: Canada 1985-2020



What we have learnt? Summary

1. Simon Kuznets gathered tax data, proposed inequality measure and discover incerase and decrease of inequality in the US in 1913-1948. He explained it by the theory of emerging more productive industrial sector in the economy
2. Thomas Piketty et al. extended this data to the present day and found that inequality has risen again since 1980. Branko Milanovic proposed the theory of Kuznets Waves for the last 500 years
3. In the preindustrial phase we had low and stable average income and non systematic rises and declines of inequality
4. Epidemics, wars, invasions, new discoveries and colonisations of the preindustrial phase influenced inequality via many mechanisms e.g. Malthusian waves an early theory of interrelationship between real wages growth, population growth and poverty
5. The explanations of the inequality trends during industrial phase are economic (industrialization and urbanization), demographic (ageing) and political (exogenous shocks of wars and revolutions, welfare state, mandatory public education)
6. Great Levelling (GL) had a socialist and capitalist version. Socialist GL was harmful for economic growth and socialist economic and political systems were dismantled in majority of socialist states
7. In the post-industrial phase average income is still increasing, but after Great Levelling income inequality is growing again
8. The explanations of the rise of the inequality trends during post-industrial phase are economic (e.g. high skilled-biased technological change, globalisation, rise of the service sector) and political (e.g. pro-rich tax reforms)
9. Milanovic theory predicts new Great Levelling with low-skilled technological change among many other different mechanisms