

Rethinking Inequality: Lessons from History, History of Thought, Theory, and the Pandemic

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Pandemic exposed the depths of inequality in our society

- Differential impacts in terms of disease burden, economic effects, future prospects—education
 - Not a surprise, given magnitudes of inequalities in all dimensions—including health
 - Differences both between and within countries
- Heightened awareness of how poorly suited DSGE/representative agent models are to understanding macroeconomy
 - Negative savings at bottom, weak buffers; huge savings at top, large buffers
 - Clearly, like 2008, major event off of equilibrium trajectory

References: Chetty, Raj *et al* 2020. “How Did COVID-19 and Stabilization Policies Affect Spending and Employment? A New Real-Time Economic Tracker Based on Private Sector Data.” *NBER Working Paper No. 27431*

M. Guzman and J. E. Stiglitz, “Towards a Dynamic Disequilibrium Theory with Randomness,” NBER Working Paper No. 27453, June, 2020. forthcoming in *Oxford Review of Economic Policy*, and NBER Working Paper No. 27992, October

J. E. Stiglitz, “The Pandemic Economic Crisis, Precautionary Behavior, and Mobility Constraints: An Application of the Dynamic Disequilibrium Model with Randomness,” forthcoming in *Industrial And Corporate Change*, and NBER Working Paper No. 27992, October 2020

Historically, 2 views of inequality

- Result of exploitation
 - Reflection of “power”
 - Historical explanation of the origins of power
- Marginal productivity theory—reflection of social contribution, just deserts
 - Capitalists: reward for abstinence from consumption (Senior)
 - Imperfectly explained different factor (skill) endowments
 - Still, provided seemingly satisfactory *justification* for inequalities

Reference: Much of this talk is based on J. E. Stiglitz, *The Origins of Inequality, and Policies to Contain It*, forthcoming, Oxford University Press; and J. E. Stiglitz, *People, Power, and Profits: Progressive Capitalism for an Age of Discontent*, 2019, 2020.

A focus on factor distribution

- For a long time, theories of inequality focused on the distribution of income between labor and capital, then between skilled and unskilled labor
- Relative factor supply (Malthusian model—very elastic labor supply)
- But with demographic transition and increased life cycle savings, distribution should have changed towards workers (especially if elasticity of substitution is less than one)
- With globalization and entry of women into labor force, distribution should have changed against workers
- Robotization/AI may make this worse

From supply side to demand side

- Aggregate production function *assumes* no role for demand
- Kaldor/Uzawa etc. emphasized role of demand and potential for multiple equilibria
 - High investment equilibrium with high savings and large share of capital if capitalists save more than workers and investment goods sector more capital intensive
 - Broader point: if public sector pays high wages for teachers, public employees etc. equilibrium might be characterized by larger labor share of income (value of teachers socially/politically determined, not just market determined)
 - Multiple political/economic equilibria

Back to technology: endogenous induced innovation

- *Effective* labor and capital supply endogenous
- Helps bound relative shares if elasticity of substitution is less than unity: when share of capital gets large, capital augmenting technological change is induced
- Long run relative share is one inducing pure labor augmenting technological change
 - Why might that be associated with *declining* share of labor?
 - Hysteresis effects: we may be learning better how to induce labor augmenting innovation
 - Government policy encourages labor augmenting innovation (low interest rates, taxes on labor, no price on carbon)
 - Even without government distortion, bias towards excessive labor saving innovation

Reference: J. E. Stiglitz and B. Greenwald, *Creating a Learning Society: A New Approach to Growth, Development, and Social Progress*, New York: Columbia University Press, 2014.
abbreviated paperback: 2015

From factor distribution to individual/household distribution

- Key is intergenerational transfers of human and physical capital (more broadly, intergenerational transfer of advantages and disadvantages)
- Best described by set of diffusion equations
- Giving rise to **an equilibrium distribution of income and wealth among individuals (households)**
 - **Balancing out of centrifugal and centripetal forces**
 - **Exhibiting Pareto tail wealth inequalities and realistic wage distributions**
 - **Some strikingly simple characterizations of tail inequalities and variances and covariances of wages and wealth**

Simple mathematics

$$(1) dk_t = (sw - \mu k_t)dt + \sigma k_t dZ_t$$

where k is per capita wealth of family (dynasty) at t , where σ is the risk associated with the return on capital, assumed proportional to r , the return on capital:

$$\sigma = r\bar{\sigma}$$

and where μ is the rate at which there is regression to the mean (the drift in the stochastic process), with those with high levels of capital per capita “drifting” back to the long run equilibrium value as follows:

$$\mu = n - sr > 0.$$

where n is reproduction rate, s savings rate; and

$$(2) dA_t = -\beta(A - \bar{A})dt + \sigma_A dZ_{wt}$$

where $\ln(w) = A$ and β is regression towards mean

Simple mathematics (continued)

The stationary wealth distribution has an asymptotic Pareto tail.

(Technical matter: one doesn't have to assume reflecting barrier)

The measure of tail inequality α is given by

$$\alpha = 1 + \frac{2\mu}{\sigma^2}$$

In steady state, simple formula for α :

$$\alpha - 1 = 2s^2 \frac{1 - S_k}{S_k^2 n \bar{\sigma}^2}$$

where S_k is share of capital

Reference: Original modeling: David Bevan and J. E. Stiglitz, "Intergenerational Transfers and Inequality," *The Greek Economic Review*, 1(1), August 1979, pp. 8-26.

More recent results: Stiglitz, *Origins of Inequality*, chapter 12.

Increase in inequality over time reflects changing balance of forces—increased centrifugal forces, weakening centripetal forces

Examples

- Weaker public education, increased economic segregation
- Regressive taxation at the top
- Importance of forces of “wealth begetting wealth”
- Assortative mating
- Increased importance of particular form of meritocracy

Contrast with Piketty's perspective

- Ever increasing inequality ($r > g$)
 - Ignores endogeneity of returns to capital
 - Savings rates of capitalists much less than unity, so appropriate criteria is $sr > \text{or} < g$)
- Synthesis: models with overlapping generations and dynastic savings
 - Generate equilibrium wealth and income distributions
 - Key policy insight: **taxing capital may hurt workers even if proceeds are redistributed to workers; but not if proceeds are reinvested, e.g. in human capital**

Back to the beginning: exploitation

- Can't explain patterns of returns, low levels of investment with seemingly high returns to capital, etc. within standard competitive model
- Market economy rife with imperfections
 - Asymmetries of market power
 - Asymmetries of information
 - Absence of key markets
 - Non-market clearing

The importance of rules

- Rules of the game matter—markets don't exist in a vacuum
 - Alternative rules can generate stronger economic performance (broadly defined) with greater equality and more sustainability
 - No longer “big trade-off”: equality and performance can be complementary
- Rules set by politics
 - “Political-economic” equilibrium

References: J. E. Stiglitz, Nell Abernathy, Adam Hersh, Susan Holmberg and Mike Konczal *Rewriting the Rules of the American Economy: An Agenda for Growth and Shared Prosperity*, 2015; J. E. Stiglitz, with Carter Daugherty and the Foundation for European Progressive Studies, *Rewriting the Rules of the European Economy*, 2020.

Policies to combat inequality

Better understandings of *origins* of inequality give better insights on how to combat it

- Greater equality of “endowments”
 - More progressive taxation, especially of inheritances
 - More equal education, pre-school to universities
 - Rethinking longer run effects of meritocracy, discrimination
- Changing factor distribution
 - Public investment
 - **Steering technological change**
 - **New rules**—increasing market power of workers, decreasing that of corporations and CEO’s; curbing exploitation in all forms—including discrimination; rules of finance and globalization and bankruptcy; minimum wages

Reference: A. Korinek and J. E. Stiglitz, “Steering Technological Change,” paper presented to NBER conference on Artificial Intelligence, September 2020.

Policies to combat inequality

- Redistribution, safety nets, and social insurance
 - Progressive taxation
 - Progressive expenditure programs (health, education)
 - More extensive use of public option (including mortgages)
- Sensitivity to impact of *all* policies on distribution
 - Monetary policy
 - Inflation targeting led to greater output gap, lower bargaining power of workers
 - Low costs of capital, high labor taxes lead to labor saving innovations
 - QE led to greater wealth inequality

Need a comprehensive agenda

- More than just providing more and better education
- More than just tweaking the system a little
- Enacting will require political reforms
 - Weakening power of money
 - Which inevitably undermines system of checks and balances
 - Democratization: ending the concerted attempt to disenfranchise, disempower, and “put democracy in chains”
 - May be **multiple political and economic equilibria**: we’ve slipped into one marked by high political and economic inequality
- Game theory has given us tools to talk about power
 - Economic and political power are intertwined
 - Nineteenth century perspectives on exploitation may have been nearer the market than theories based on perfect competition

Back to pandemic and inequality

- Pandemic *exposed* inequalities
- But it also increased inequalities
 - Virus was not an equal opportunity virus
 - Loss of jobs
 - Disparate educational effects
- K shaped recovery
 - Marked by increasing market power—worsening pre-existing problem

Shaping economic response to pandemic

- Even though there is “light at the end of the tunnel,” impacts of next few months may be severe, with long lasting effects
 - Spending needs to address needs of most vulnerable
 - Time matters: broad based approach preferable to finely tuned
- Spending needs to serve dual/triple purpose
 - Revive economy
 - Address key transformations: towards green, knowledge based economy
 - Promote equality—through labor intensive spending
- There exist spending programs that do this—and have high multipliers
- But broader policy framework has to simultaneously respond to the broader problem of increasing inequality that Covid-19 so strongly showed and exacerbated, e.g. by stronger actions to curb market power

Reference: Cameron Hepburn, Brian O’Callaghan, Nicholas Stern, J. E. Stiglitz, and Dimitri Zenghelis “Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?” , *Oxford Review of Economic Policy*, 2020