

# **Trends in Inequality: Social, Economic and Political Issues**

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# Outline and main messages

## I. Explaining growth of inequality

- Not based on disparity of savings between rich and rest
  - with ever increasing inequality
- An equilibrium wealth and income distribution
  - based on balancing of centrifugal and centripetal forces
- A change in balance of “forces” has led to increased inequality
- Cannot reconcile increase in inequality and other puzzles of modern economy through lens of competitive market
- What is crucial is growth of rents
- Key in understanding growth of rents is how the rules of the market economy have been rewritten in last third of a century

# Outline and main messages

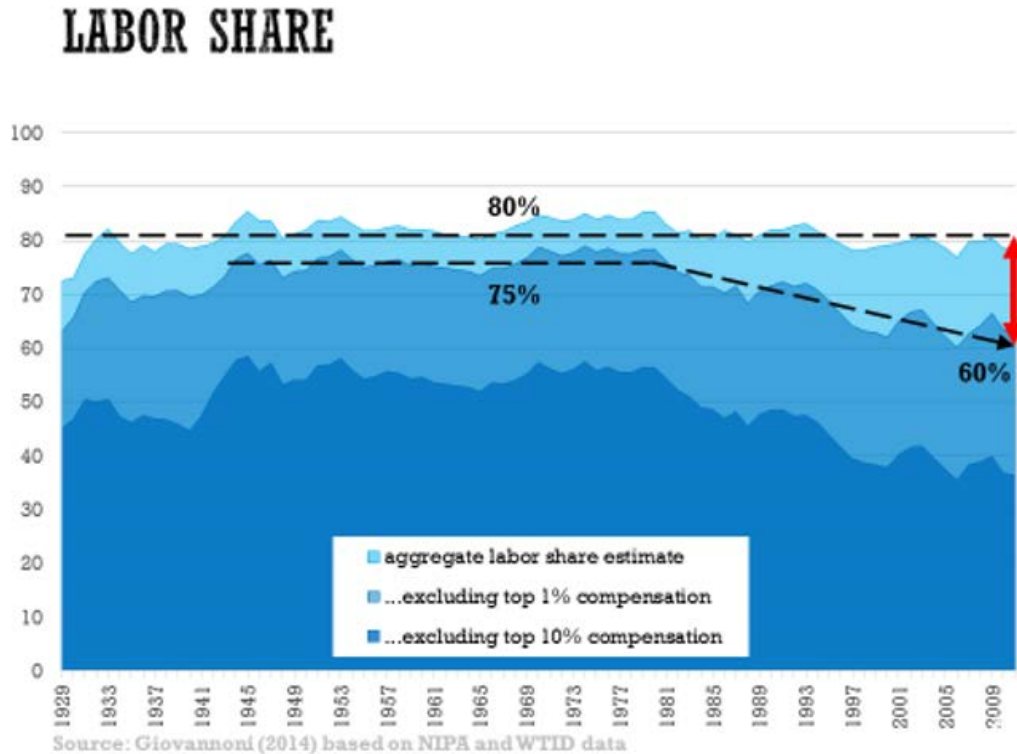
## II. Consequences of inequality

- Worsening economic performance
- But of even more concern: changing the nature of individuals and society
- Insights from new behavioral economics

# What is to be explained?

- Enormous increase in inequality in income and wealth over past third of a century
  - In contrast to Kuznets law, which suggested after a point of time in development, inequality would decrease
  - Kuznet's theory was true when he wrote it
  - "Repeal" began in 70's/80's
- Including a decrease in share of labor
  - In contrast to earlier period when shares were relatively constant
  - Especially when one excludes top 1%
- More money to the very top, more people at the very bottom, and more dispersed distribution

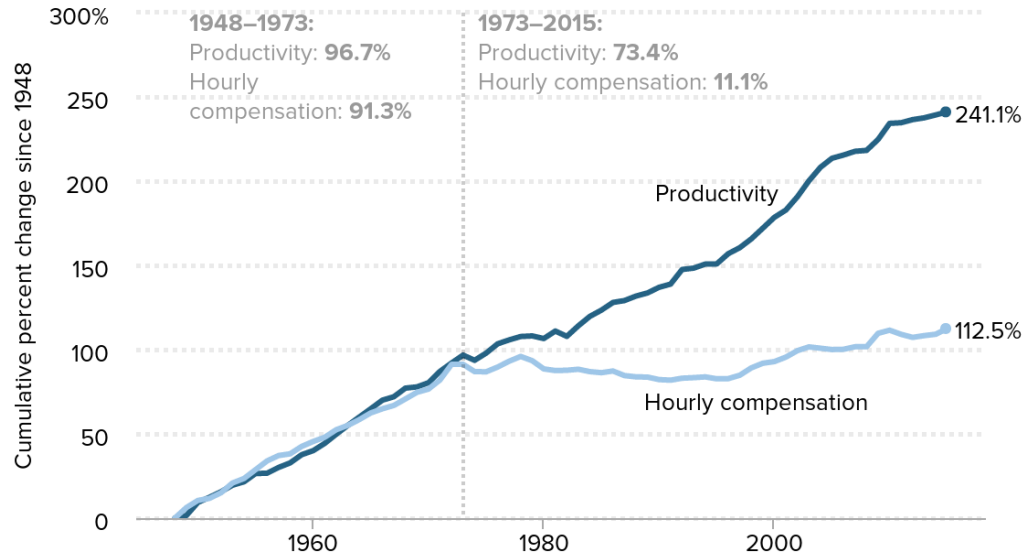
# Decreased share of labor—especially if one focuses on bottom 99% of labor



# High levels of inequality

- *Average* compensation not kept pace with productivity, with relatively sudden break in patterns in 70's
  - Average real wages close to stagnant
- No sudden change in technology that can explain sudden change
- Can be explained by changes in laws, rules, norms, including globalization
- Can't be explained by "skilled bias technological change": this is about average pay, and with any production function where aggregate output is a function of aggregate capital, an increase in aggregate capital relative to labor must increase real wages, and decrease share of capital if elasticity of substitution is less than one

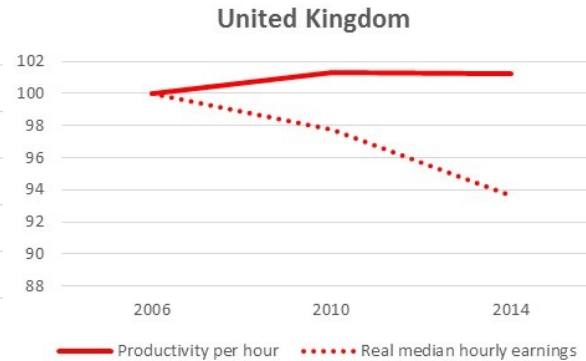
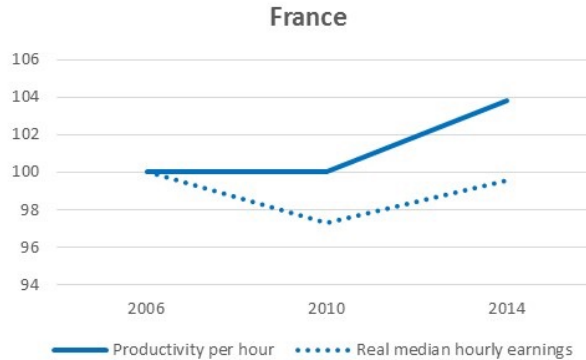
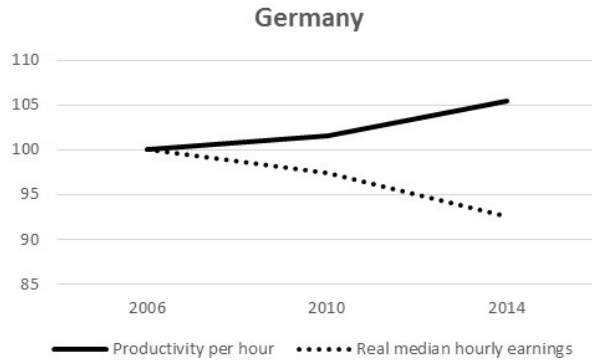
# US: Disconnect Between Productivity and a Typical Worker's Compensation, 1948-2015



**Note:** Data are for average hourly compensation of production/nonsupervisory workers in the private sector and net productivity of the total economy. "Net productivity" is the growth of output of goods and services minus depreciation per hour worked.

**Source:** EPI analysis of data from the BEA and BLS (see technical appendix of *Understanding the Historic Divergence Between Productivity and a Typical Worker's Pay* for more detailed information)

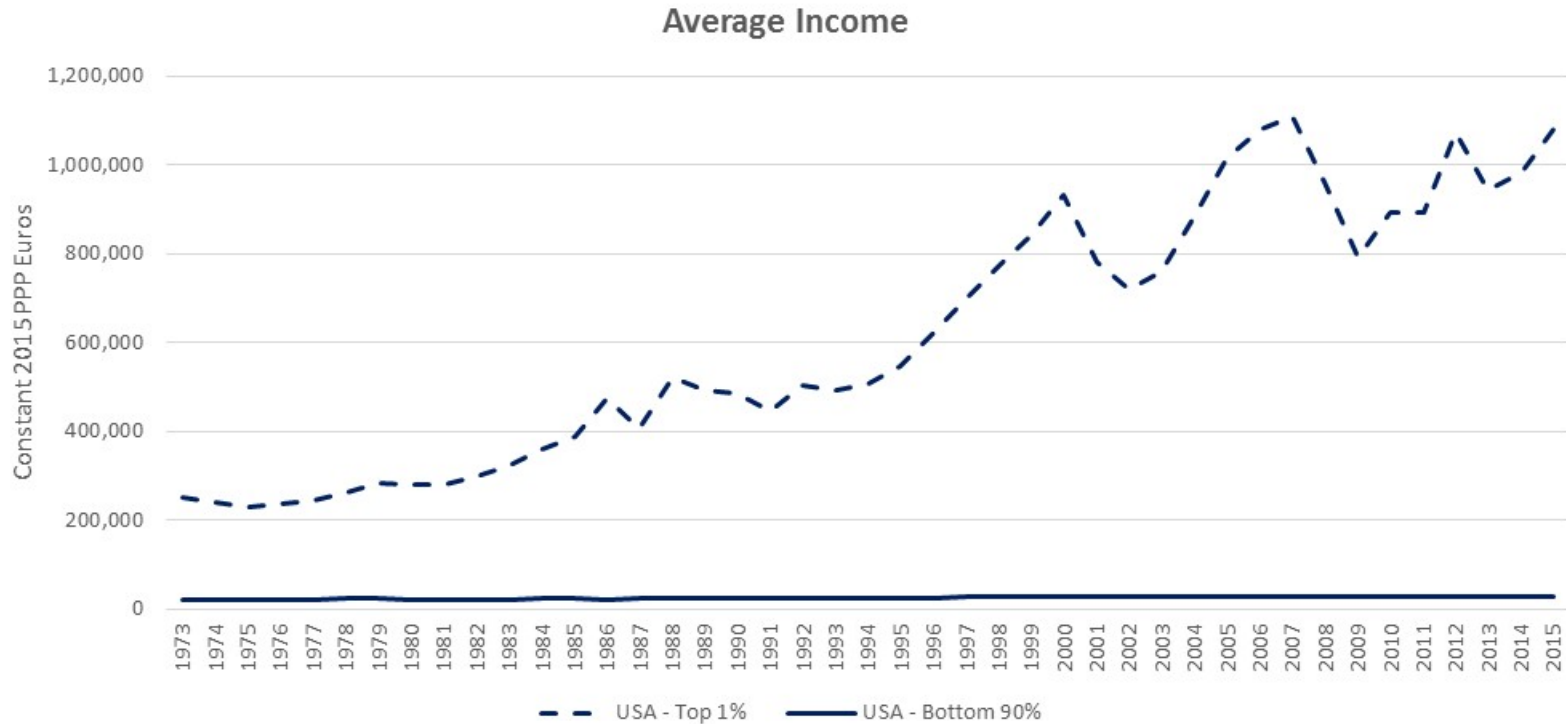
# Europe: Disconnect in Productivity and Compensation



Source: Eurostat.

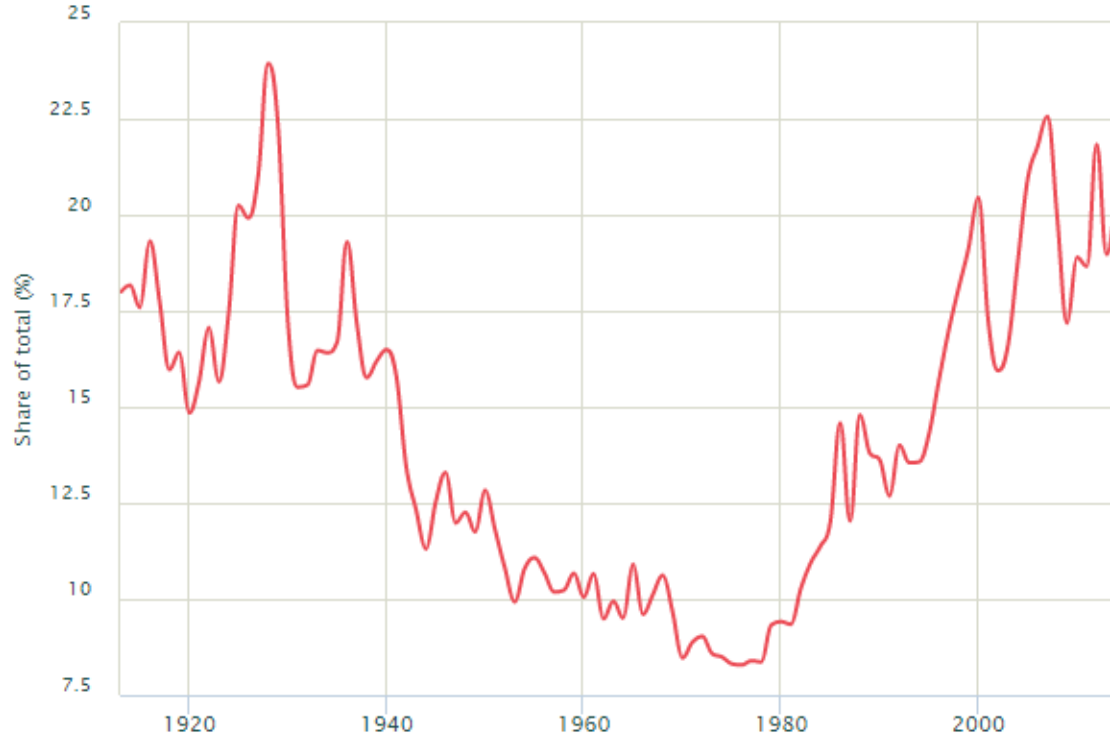


# US: bottom 90% have seen little increase in income over last third of a century



Source: World Wealth and Income Database

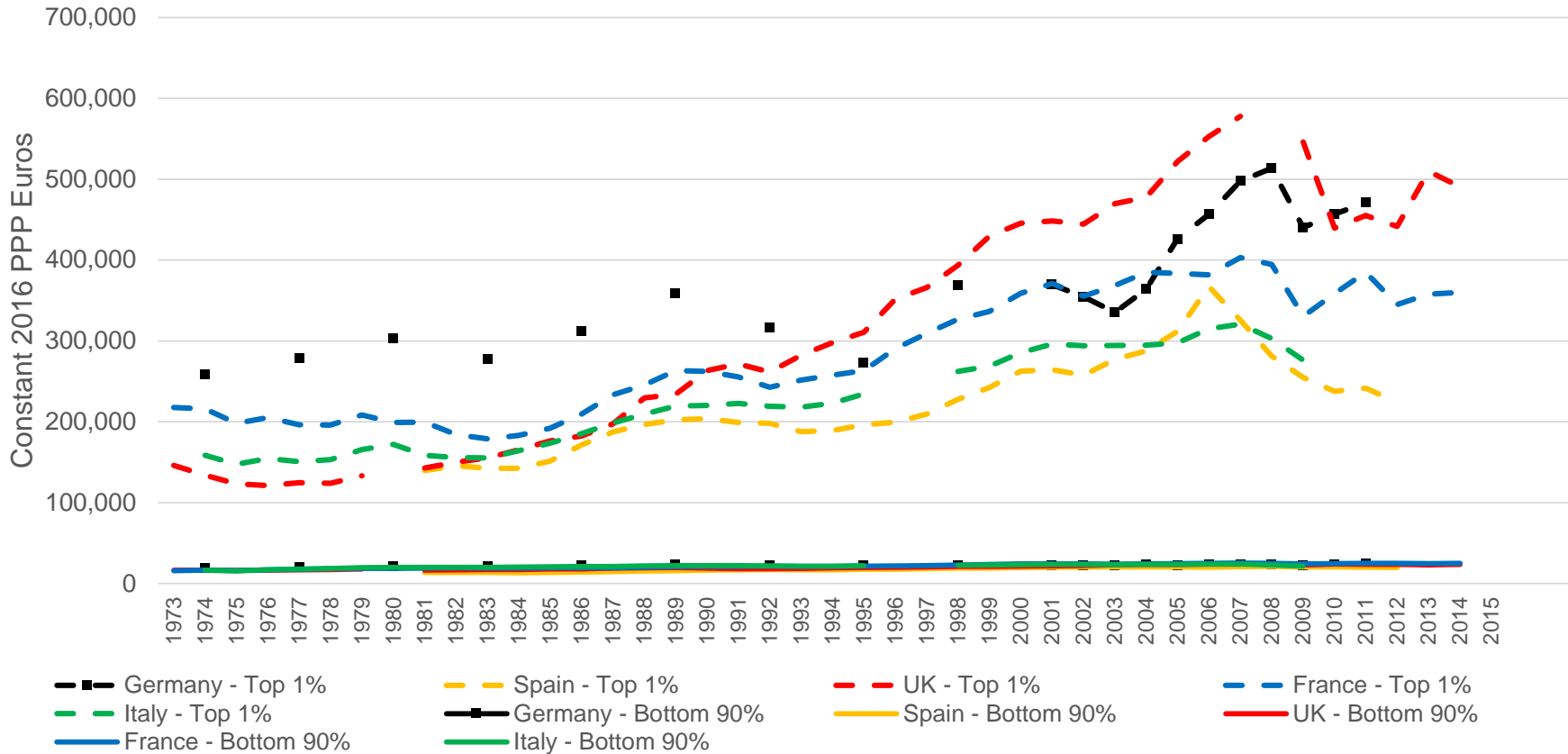
# Top 1% fiscal income share in the United States 1913-2015



**Note:** Fiscal income is defined as the sum of all income items reported on income tax returns, before any deduction. It includes labour income, capital income and mixed income. The concept of fiscal income varies with national tax legislations, so in order to make international comparisons it is preferable to use the concept of national income. The population is comprised of individuals over age 20. The base unit is the individual (rather than the household) but resources are split equally within couples.

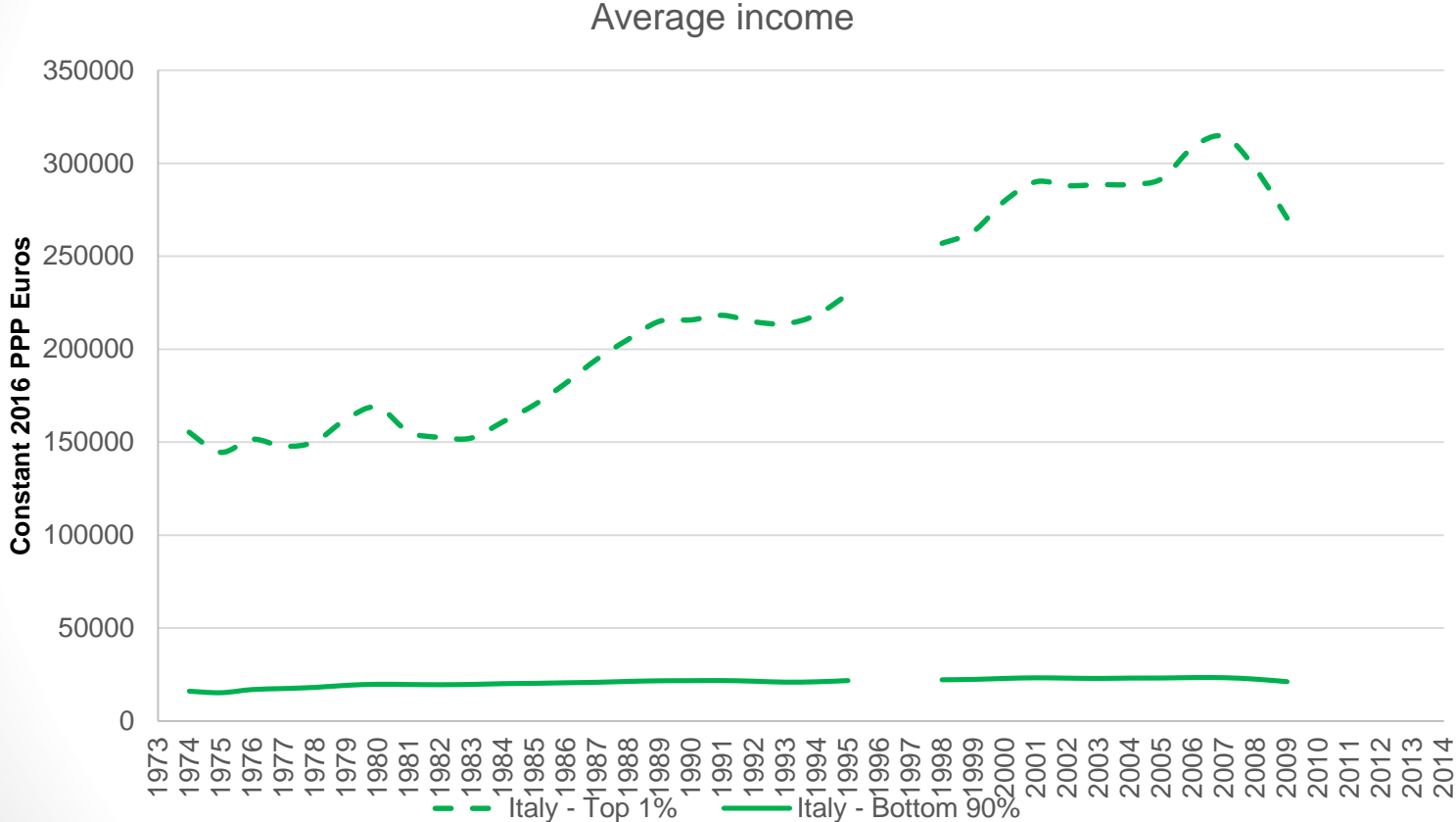
# Europe: less increase in inequality in some countries than in others

Average Income



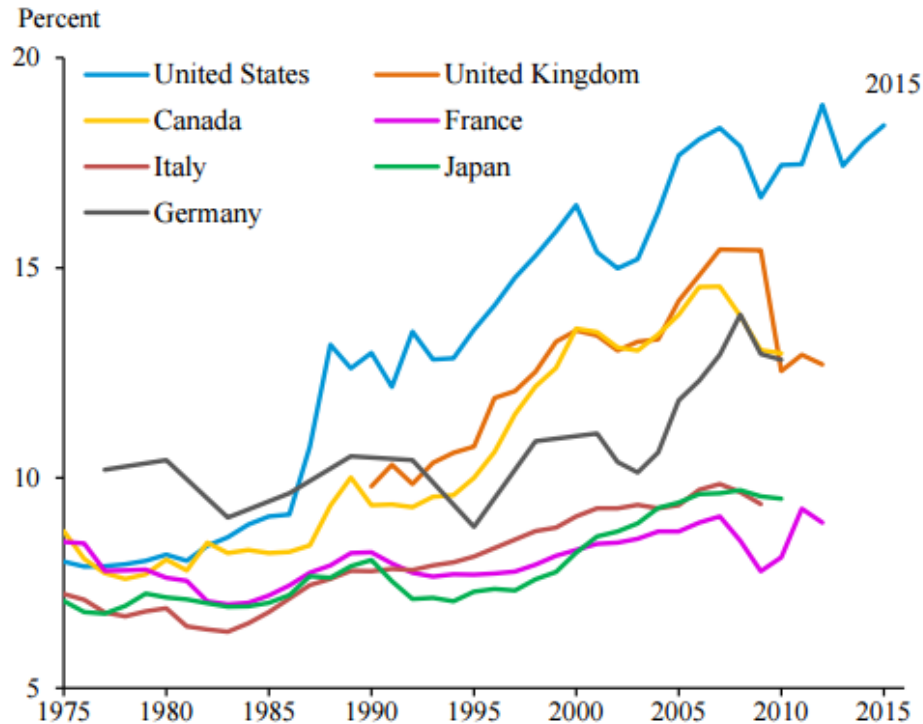
Source: World Wealth and Income Database

# Italy: increase in inequality has been less extreme



Source: World Wealth and Income Database

# Global Inequality: Share of Income Earned by Top 1%, 1975-2015



Source: World Wealth and Income Database.

Chart from: US Economic Report of the President, January 2017.

# Inequality even at the top 0.1%

## CEO compensation has grown faster than the wages of the top 0.1 percent and the stock market

Cumulative percentage change in CEO compensation, wages of the top 0.1 percent, and the S&P 500, 1978–2015



**Notes:** Wage data for the top 0.1 percent is not yet available for 2015.

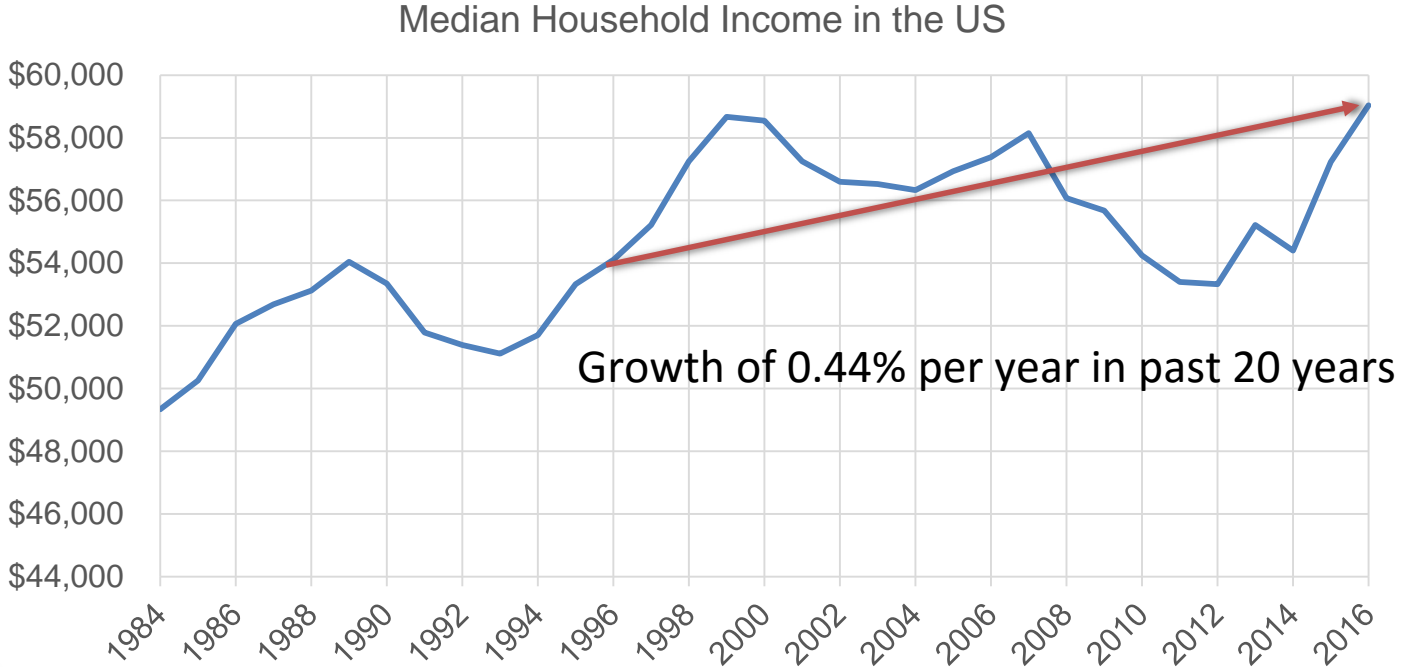
**Source:** EPI analysis of Compustat Execucomp, Social Security Administration, and Federal Reserve Bank of St. Louis databases.

# Stagnation: U.S. median household income

(constant 2016 US\$)

**1996:  
\$54,105**

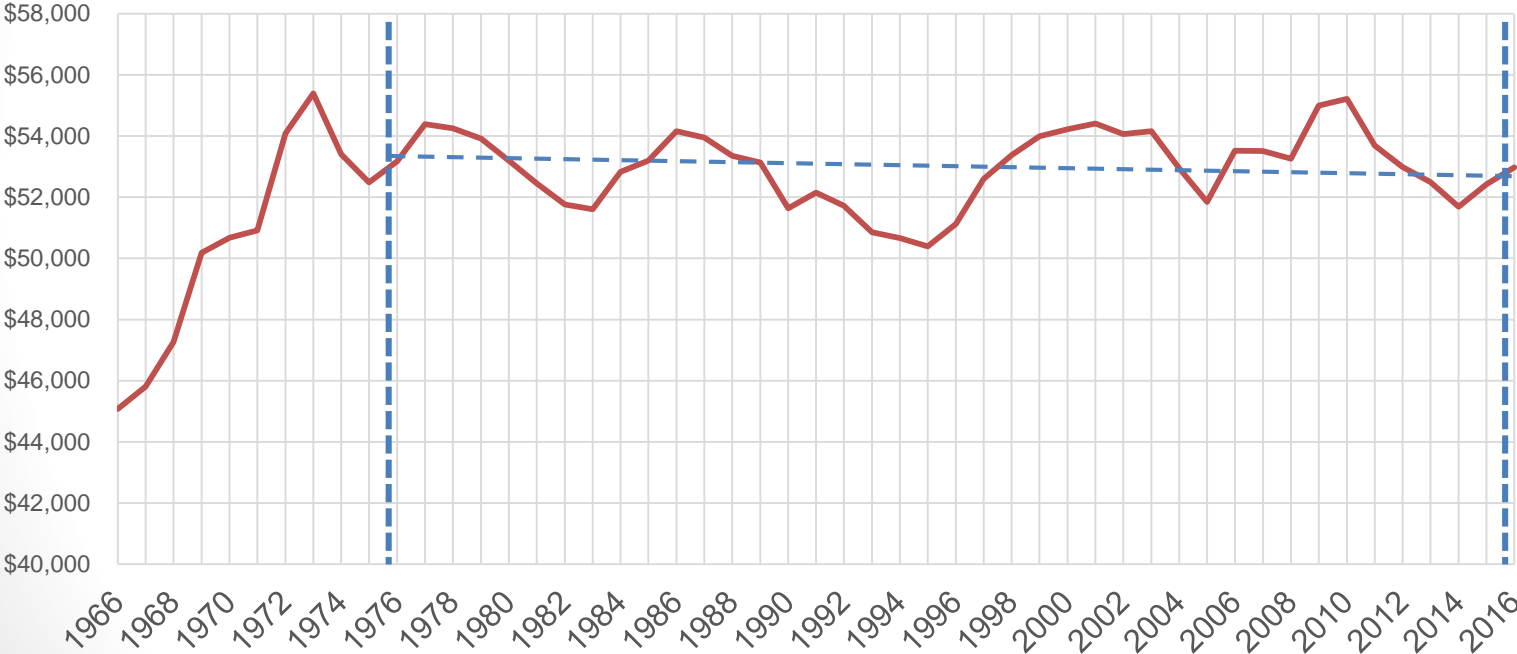
**2016:  
\$59,039**



Source: U.S. Census Bureau      Note: Data is adjusted for the methodological change of 2013.

# US: Median income of a full time male worker is at the level that it was more than 4 decades ago

(constant 2016 \$)

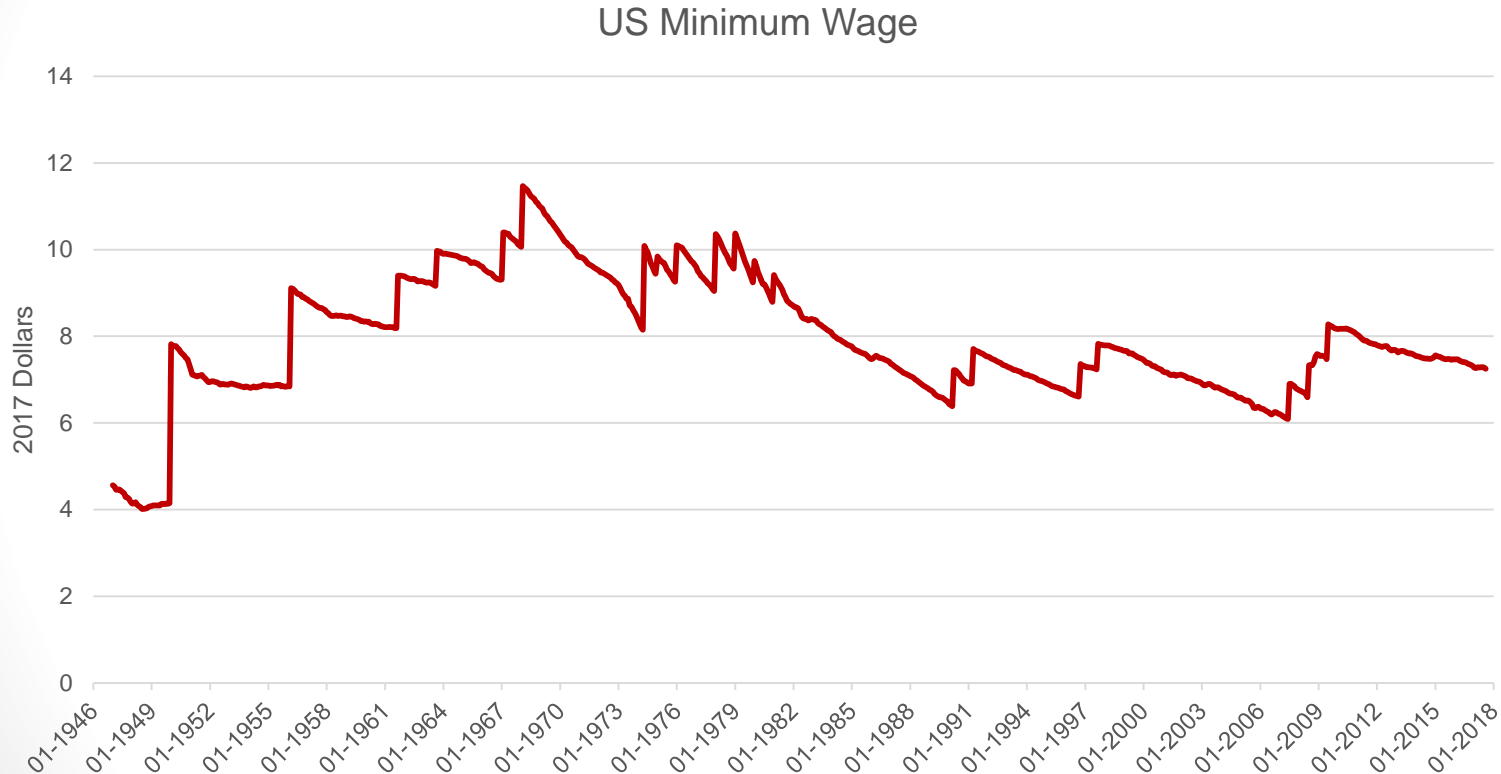


Note: Data is adjusted for the methodological change of 2013.

Source: U.S. Census Bureau.



# US: Real wages at the bottom are at the level that they were roughly sixty years ago



Source: Federal Reserve

# Global Inequality

Oxfam reports on wealth concentration at the top: how many of the richest people have as much wealth as bottom 50% (bottom 3.6 billion!)

- In 2014: 85
- In 2017: just 8 *men*

Big winners during last quarter century

- Global 1% and global middle class (middle class in China and India)

Big losers during last quarter century (not sharing in gains)

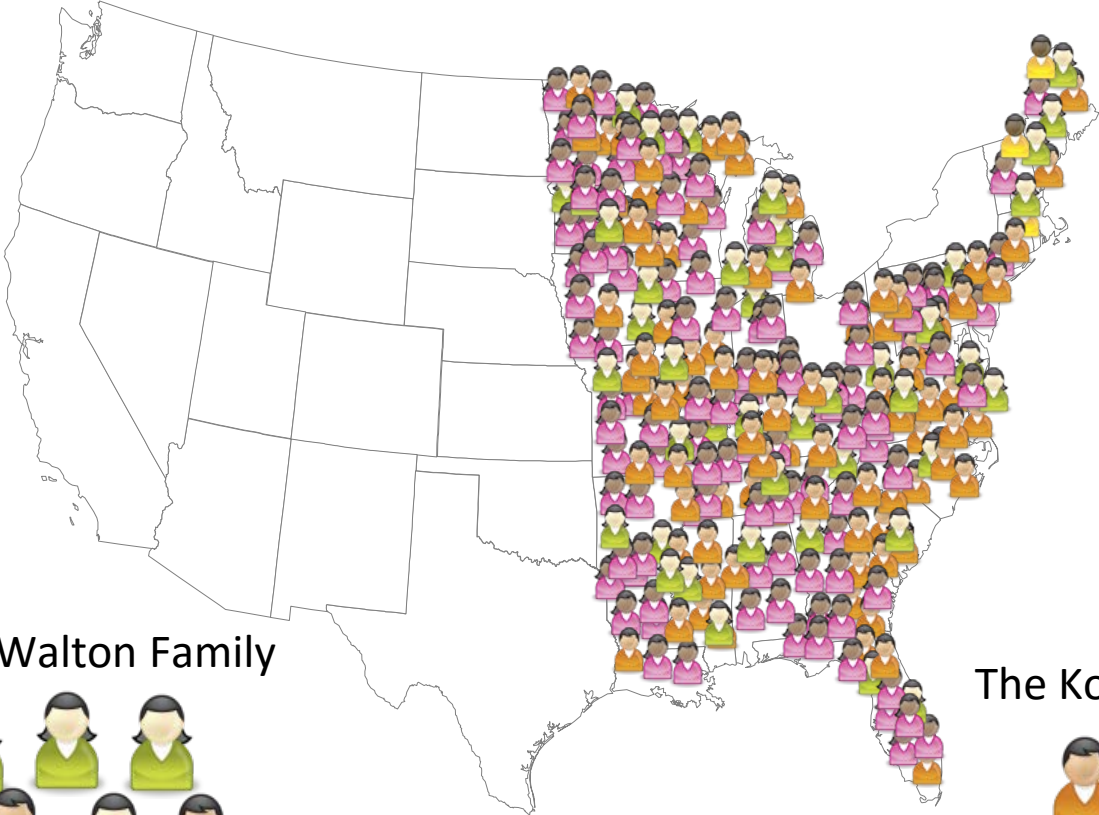
- Those at the bottom and the middle class in advanced countries

# Many other aspects of inequality

- Wealth
- Health
- opportunity

**The Walton Family and The Koch Brothers have a net worth of \$212 billion in 2016**

**That's the net worth of 115 million Americans or 35% of the country.**



**The Walton Family**



**The Koch Brothers**

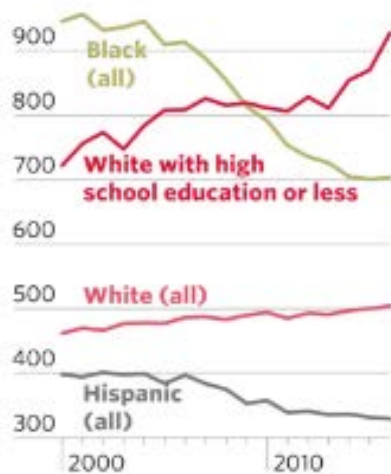


# Decline in life expectancies and an increase in deaths of despair

New research shows the increasing mortality rate among white Americans spans age groups and is most acute among the less-educated.

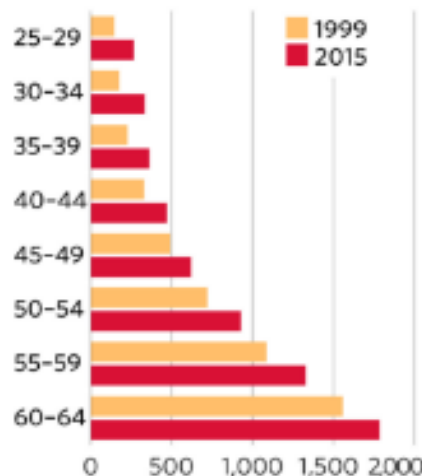
White deaths are rising...

Mortality rate by race, ages 50-54



...among all age groups of less-educated whites...

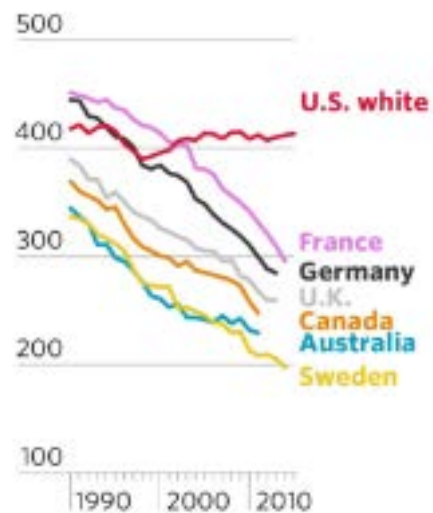
Mortality rate for whites with high school education or less, by age



Mortality rate=deaths per 100,000  
Anne Case and Angus Deaton of Princeton University

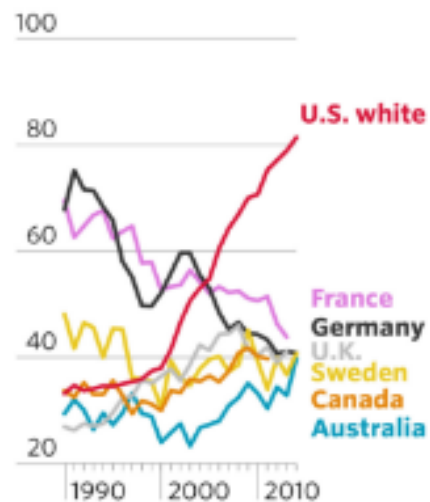
...in contrast to elsewhere...

Mortality rate for all causes, ages 45-54

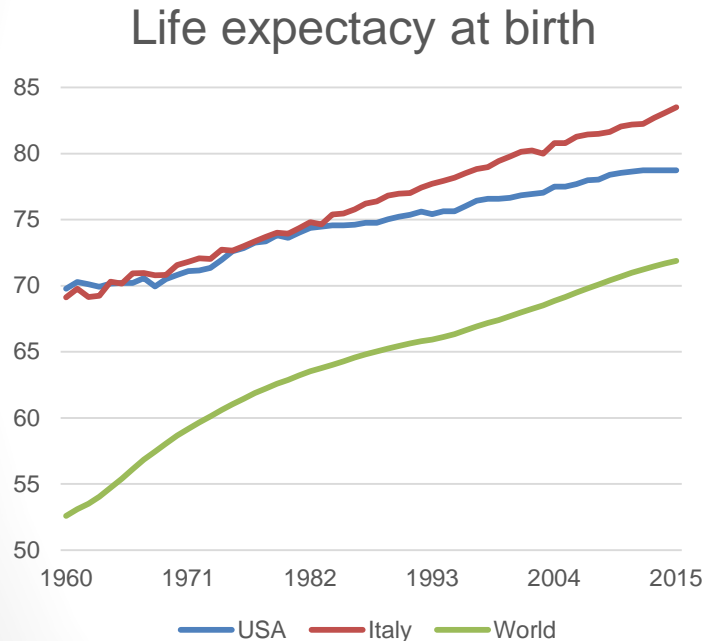


...due in part to increases in 'deaths of despair'.

Mortality rate due to alcohol, drugs and suicide, ages 50-54

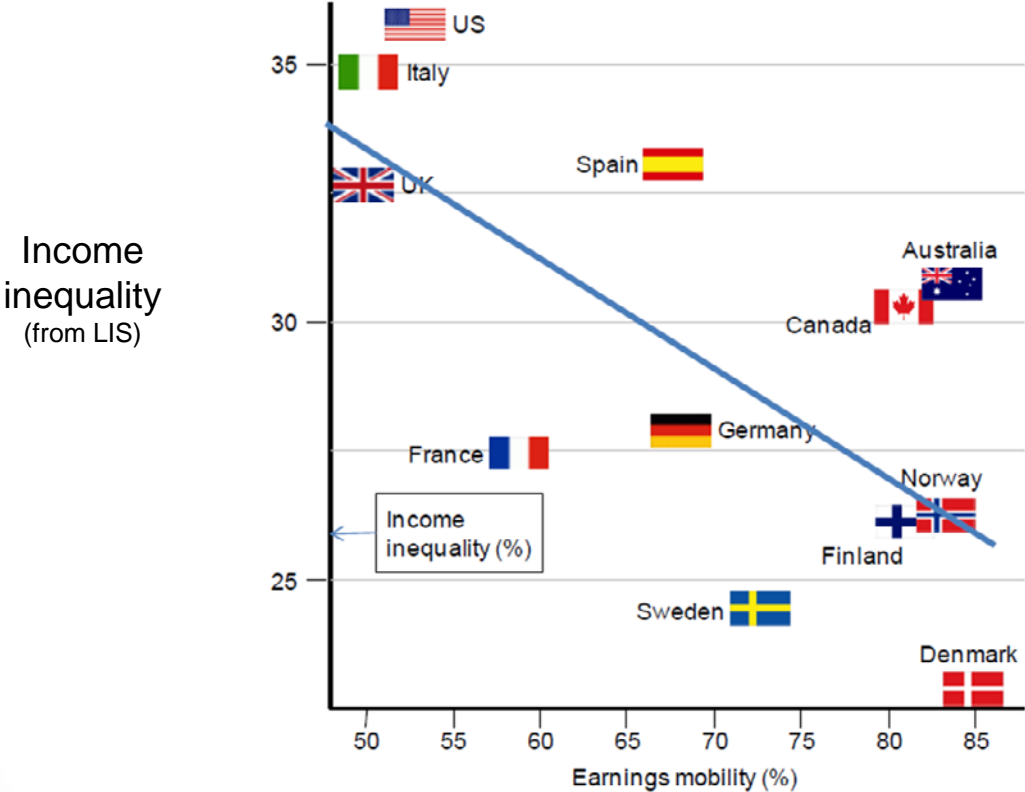


# Life expectancies in Italy up, but suicide rates remain high—though still markedly lower than US



- Suicide rates in Italy have increased in the past few years, but are only about half of the suicide rates in the US.
- Italy is 7.9 per 100,000 vs. US 14.3 per 100,000 people as of 2015.

# Income inequality and earnings mobility



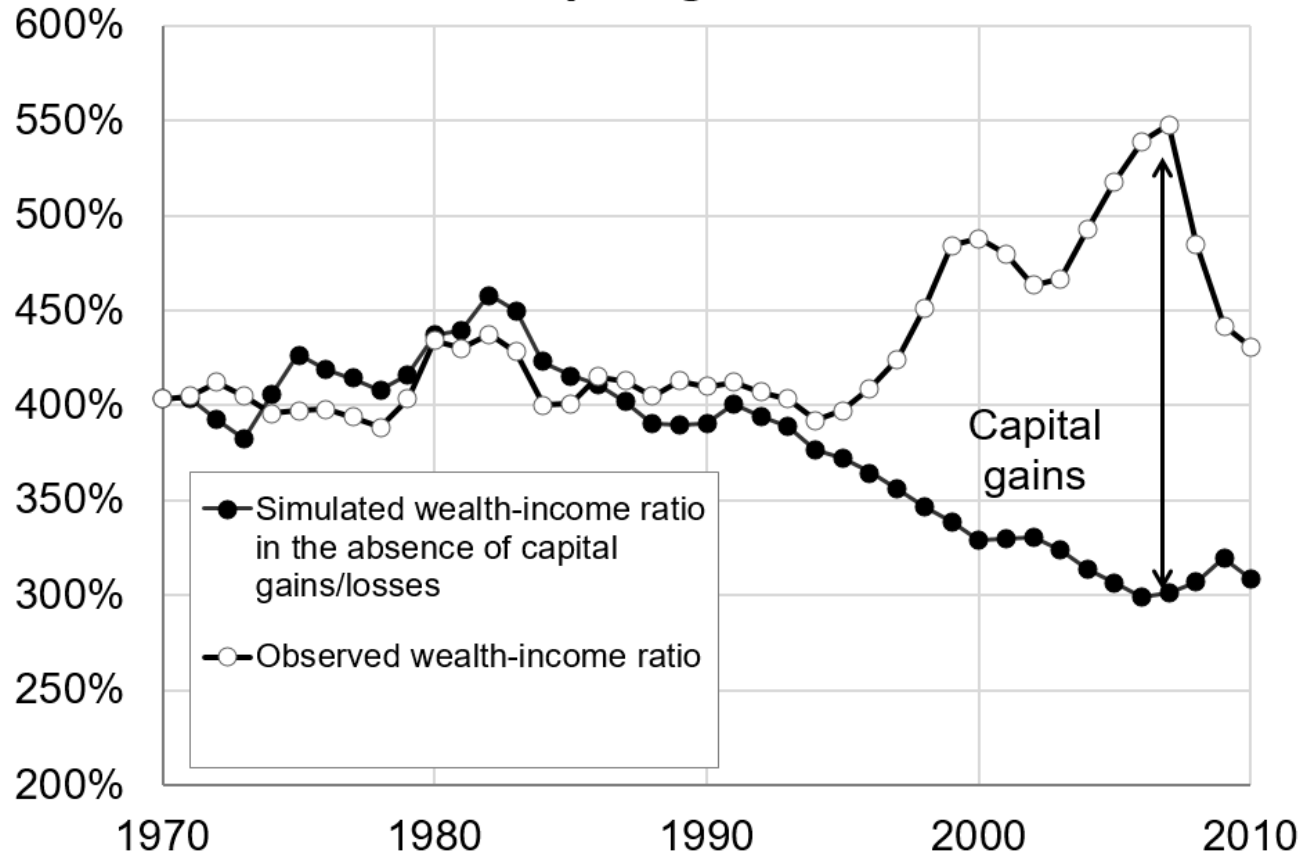
Source: Janet Gornick; OECD 2008. *Growing Unequal: Income Distribution and Poverty in OECD Countries*. Paris: OECD.



# Theories have to be consonant with other “stylized facts”

- Pareto tail to wealth distribution
- And consistent with other on-going changes in the economy—explaining conundrums
  - Increasing wealth income ratios, declining capital income ratios
    - By most metrics (though there remain some controversies in the measurement of capital)
    - Large gap between wealth and capital

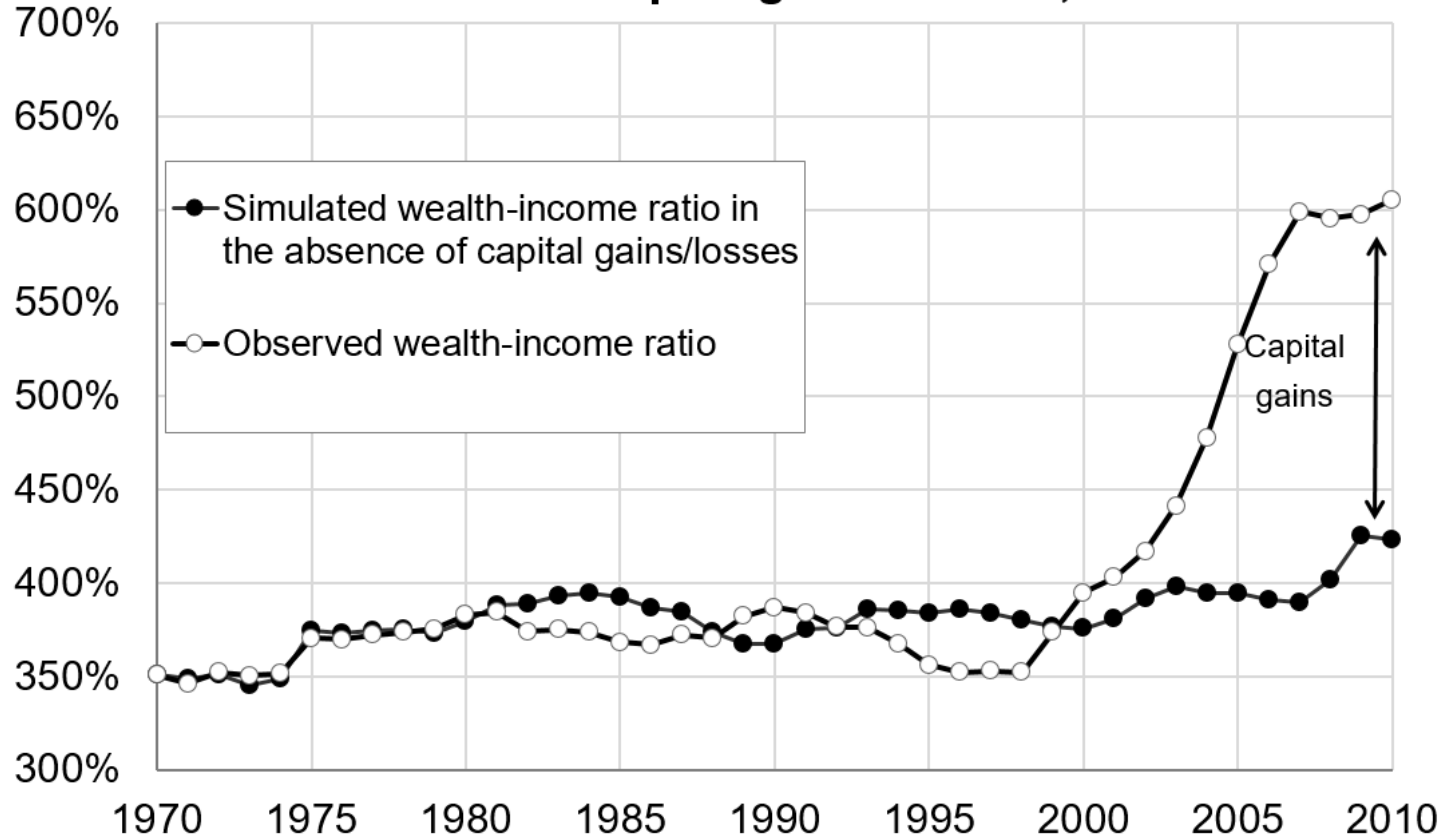
## Simulated national wealth-income ratios in the absence of capital gains: U.S. 1970-2010



Authors' computations based on 1970 wealth-income ratios, 1970-2010 national saving flows (including other volume changes) and real income growth rates.

Source: *Capital in the Twenty-First Century*, Thomas Piketty.

## Simulated national wealth / national income ratios in the absence of capital gains: France, 1970-2010

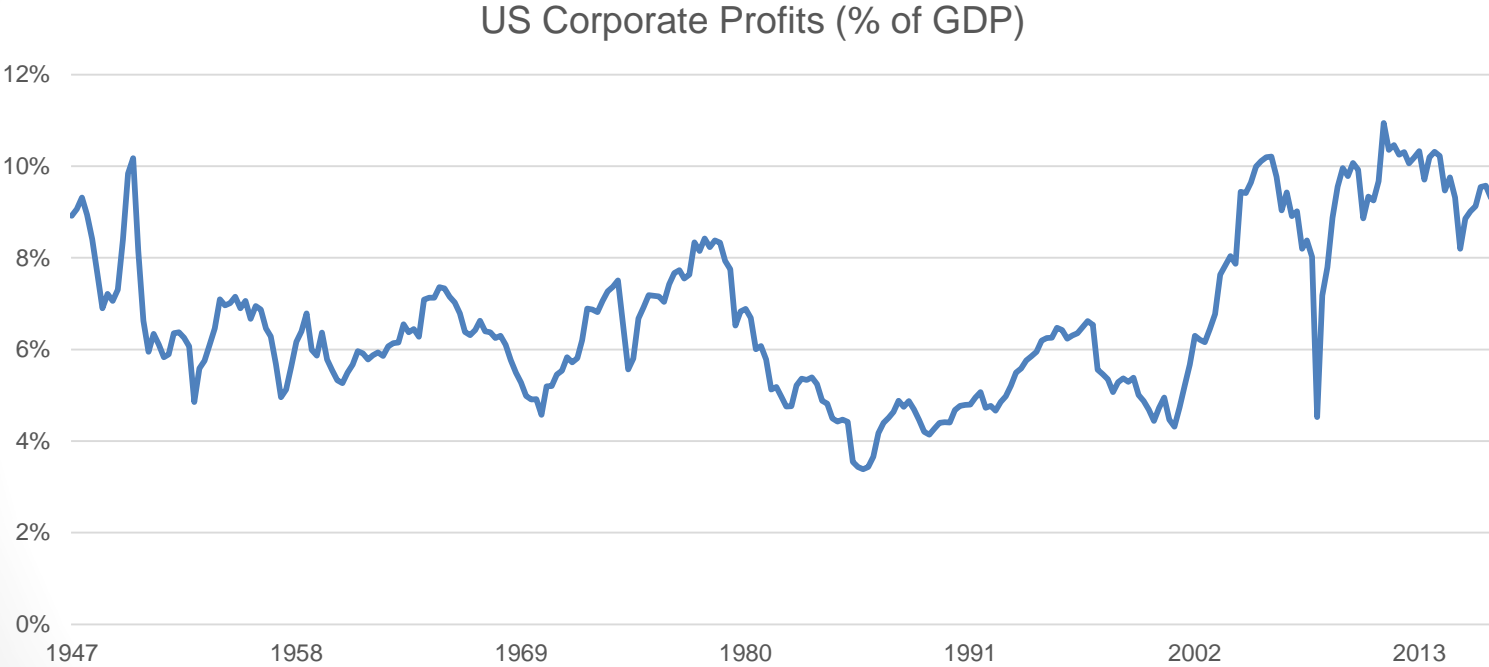


Authors' computations based on 1970 wealth-income ratios, 1970-2010 private saving flows (including other volume changes) and real income growth rates. Source: *Capital in the Twenty-First Century*, Thomas Piketty.

# Investment puzzle

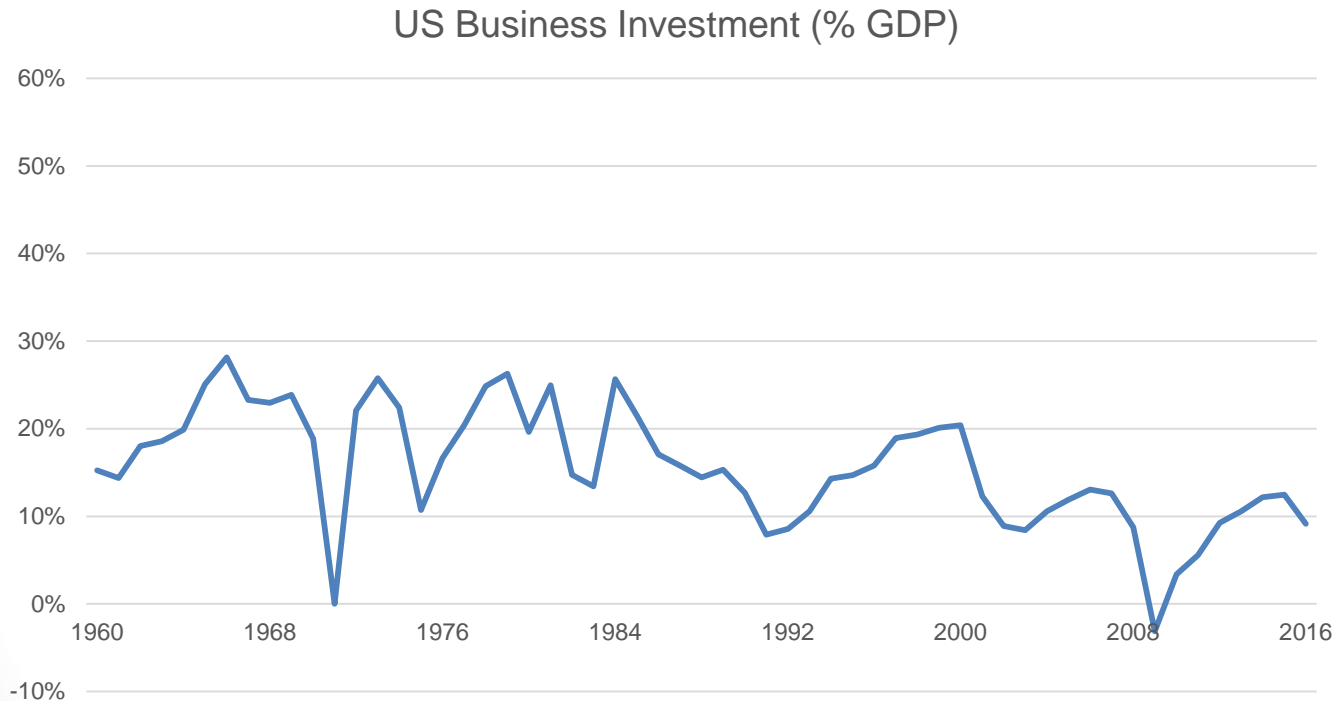
- Low investment rates even with low (nominal and real) interest rates and high value of “q” (and in spite of seemingly high *average* returns)
  - Finance not constraint
    - Large firms sitting on trillions in cash
    - Real interest rates have been negative for many periods, small in others

# Growing profits and low business investment



Source: Federal Reserve Bank of St. Louis

# Growing profits and low business investment

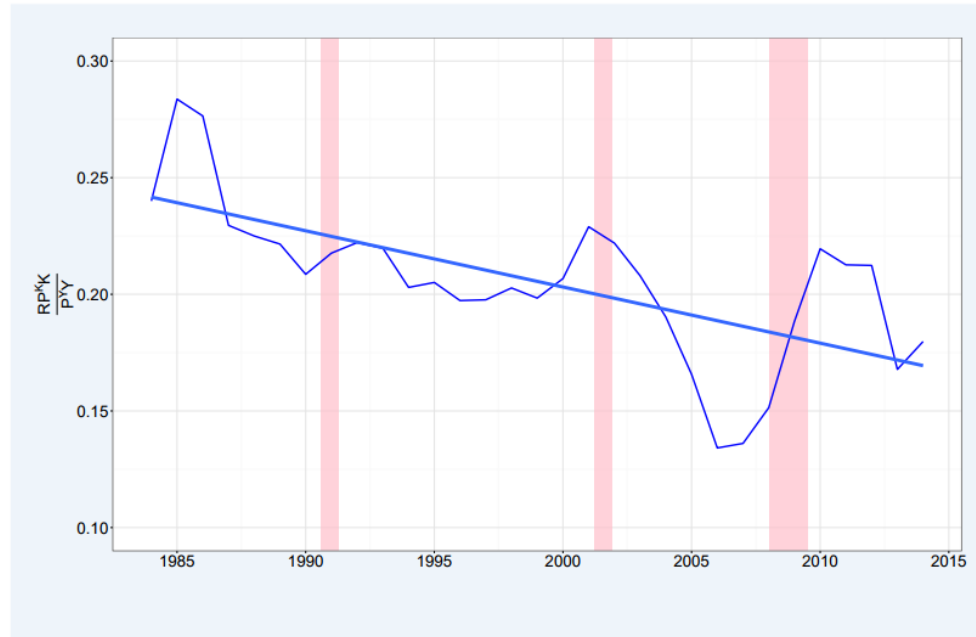


Source: Federal Reserve Bank of St. Louis

# Even share of capital down

- By any reasonable accounting framework
- Flip side of the gap between “capital” and “wealth”
- What is up is the share of rents

# The capital share of gross value added is declining



The figure shows the capital share of gross value added for the U.S. non-financial corporate sector over the period 1984–2014. Capital payments are the product of the required rate of return on capital and the value of the capital stock. The capital share is the ratio of capital payments to gross value added. The required rate of return on capital is calculated as  $R = (i - \mathbb{E}[\pi] + \delta)$ . Capital includes both physical capital and intangible capital. The cost of borrowing is set to Moody's Aaa and expected inflation is calculated as a three-year moving average.

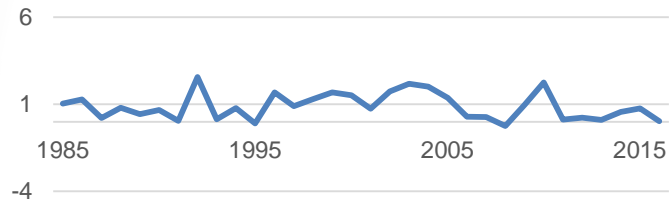
Source: Simcha Barkai, University of Chicago



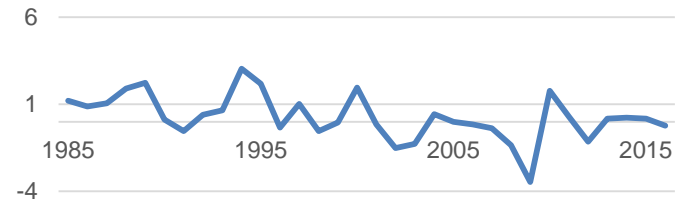
# In a supposedly innovation era, productivity growth is low

Growth in GDP per capita

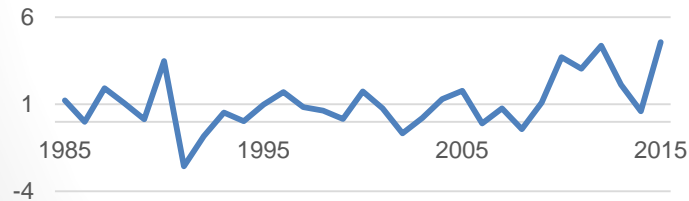
US



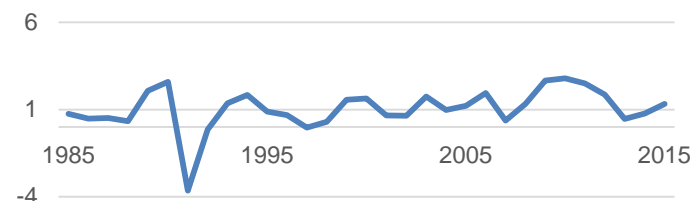
Italy



Japan



Germany



Source: OECD

# Growth in share of new firms in Italy outpaces the US



Source: OECD

# Alternative theories

- There exists an equilibrium wage/wealth distribution
  - Equilibrium characterized by a balancing of centrifugal and centripetal forces (Stiglitz, 1966, 1969, 2015)
  - What we are seeing is a movement from one equilibrium to another
  - Need to identify factors contributing to movement
- Capitalism is associated with ever-growing inequality
  - There was a short period, after World War II, when this was not true
  - We are now returning to “norm”
- This lecture argues for the former view

# Piketty model

- Piketty and others have provided important data through which we can see an increase in inequality, especially at the top
- The question is: how do we explain it? Piketty has offered a particular model
- Capitalists save all (most) of their income
  - So wealth grows at the rate  $r$
  - If  $r > g$ , their wealth grows faster than the economy,
  - If  $r$  does not decline, their income does too

## Key assumptions fail

- $s < 1$
- $r$  is endogenous, and *in long run equilibrium*  $sr < g$

## Other key flaw in analysis

- Confusing wealth with capital
- From national income data,  $K/Y$  is actually decreasing in US and other advanced countries (though there are important measurement problems)

# Benchmark model for equilibrium wealth distribution

- Traces out evolution of dynasties
  - Assuming neoclassical competitive equilibrium
- Macro-micro consistency—sum of family capital holdings equals aggregate capital
- Alternative assumptions concerning savings, inheritance, and reproduction
  - Solow, Kaldor, Pasinetti
  - Rule based, intertemporal utility maximization
- Benchmark model useful for identifying *what else* is going on

# Basic dynamics

- $\frac{d}{dt}(\log k_i) = s_i y_i / k_i - n_i,$

where  $y_i$  is the  $i$ th family's income (per capita)

$$y_i = w_i + r_i k_i,$$

where  $w_i$  is the  $i$ th family's wage,

$r_i$  is its return on capital,

$k_i$  is its capital (per capita).

$n_i$  is the  $i^{\text{th}}$  family's rate of reproduction.

If all families have the same savings,  $s$ , wages  $w$ , return to capital and  $n_i$

$$d \ln k_i / dt - d \ln k_j / dt = sw(1/k_i - 1/k_j)$$

*Complete convergence, regardless of initial wealth distribution*

In this case, there is only a centripetal force

# Variability

Introducing variability in any of the variables introduces a centrifugal force

- In benchmark model there is an equilibrium wealth distribution
- A balancing out of centrifugal and centripetal forces
- In standard diffusion model with  $\sigma^2$  variance of returns,  $n$  growth rate,  $s$  savings rate equilibrium has a pareto tail

# Pareto tail

The stationary wealth distribution has a Pareto tail with tail inequality  $\eta$  given by

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

where

$$D = \frac{\mu}{\left(\frac{\sigma^2}{2}\right)} = 2(n - sr) / \sigma^2$$



# But $r$ is endogenous

Using benchmark model above, in stationary equilibrium

$$D^* = 2 \frac{1 - s_k}{s_k^2 n \bar{\sigma}^2}$$

More tail inequality if

- (a) Variance of returns is higher
- (b) Share of capital is higher
- (c) If the elasticity of substitution is less than or equal to unity, a lower savings rate or high  $n$  leads to more inequality

# Even more Pareto-tail inequality

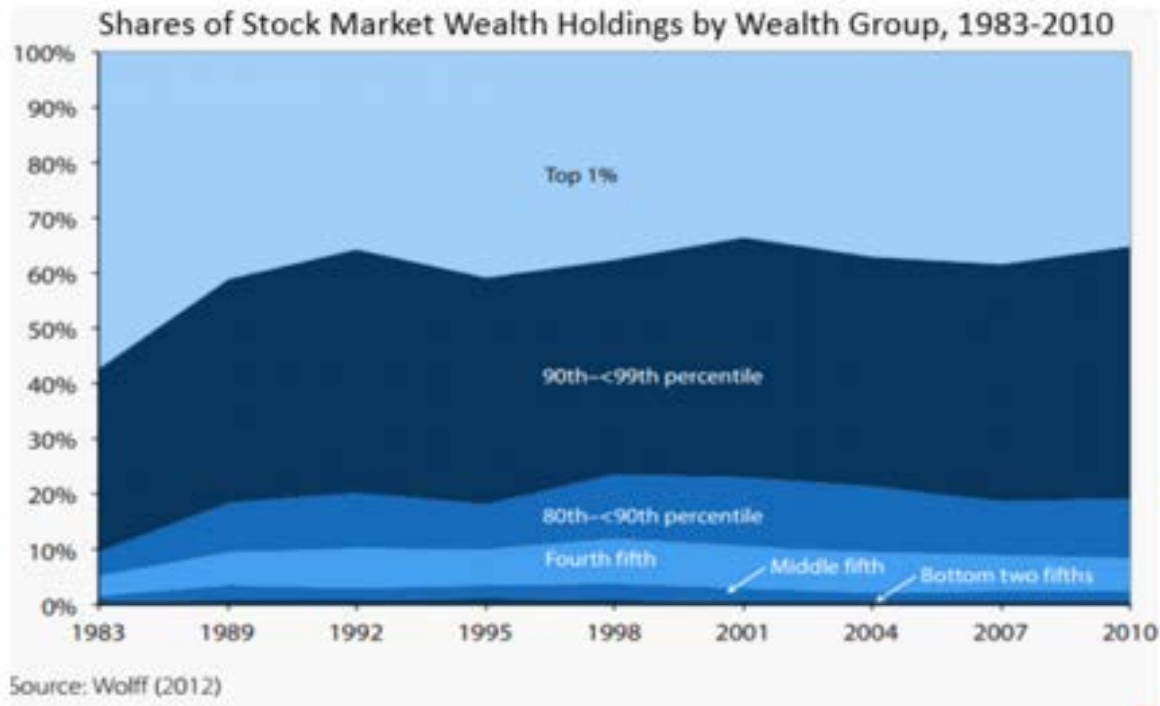
- If those at the top have assets with higher returns with more variability—evidence that this is true
- What matters is after tax return—so a lowering of tax rate at top increases tail inequality

# An important aside

- Large differences in the forms in which the wealthy or workers hold their assets
  - The wealthy own a disproportionate share of equity
  - Workers put a disproportionate share of wealth in bonds
- This has large implications
  - The increase in  $R$  (capitalized value of rents) has played an important role in increase in inequality
    - Different theory of increase in inequality than that of Piketty
  - Low interest rate policies which have led to low bond yields but high stock prices have increased inequality
  - Macroeconomic models which assume constant elasticity utility functions are missing something important

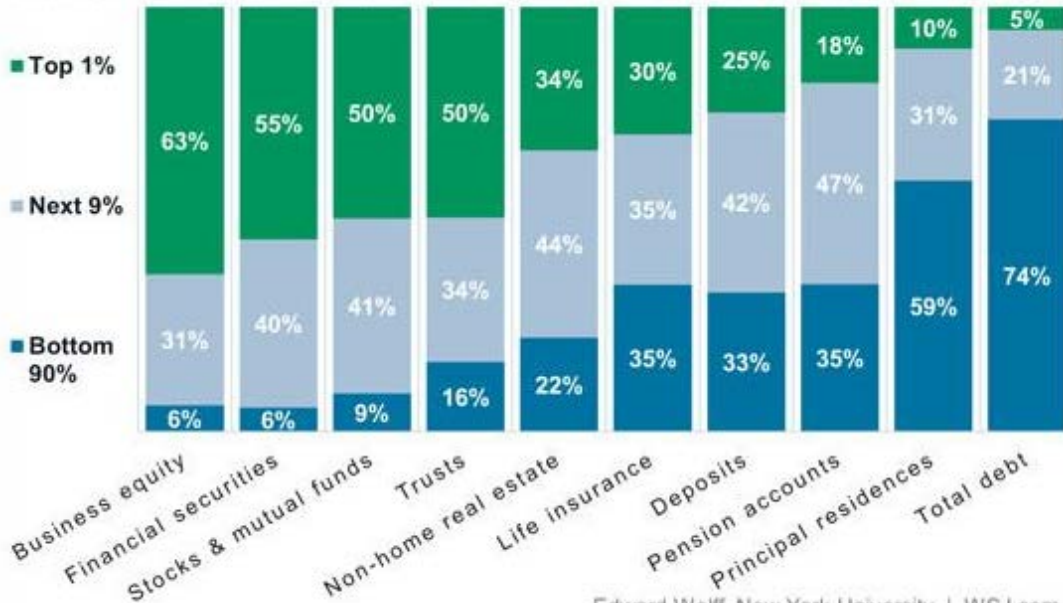
# Those at the top hold more equity

## STOCK MARKET WEALTH



# Debt

Percent of total assets and liabilities held by wealthiest 1%, next 9% and bottom 90%



Edward Wolff, New York University | WSJ.com

# Capital taxation as “solution” to inequality?

- Key issue is incidence of taxation (shifting)
  - with shifting, capital taxation may not be “solution”
  - could even make matters worse
- In benchmark model, capital taxation reduces inequality (increases centripetal force and decreases centrifugal force)
- In alternative Kaldor/Pasinetti model, with life cycle savers and dynastic savers, there is full shifting—after tax return unchanged
  - If proceeds are fully distributed to workers, decrease in wages sufficiently great that workers are worse off (even if, under some conditions, share of income increases)
  - If proceeds are invested in education and returns to education are high enough, then workers are better off

# Explaining changes in inequality:

- Changes in centripetal and centrifugal forces: changes in intergenerational transmission of advantages, markets, and **policy**

## 1. Changes in intergenerational transmission of advantage

- Lower capital and especially inheritance taxes
  - In US regressive taxation
- Weaker, less equal public education
  - More economic segregation
  - More reliance on private education
- Increased role of connections
  - Internships
- More assortive mating

# Changes in markets

- Better annuity markets reduce capital accumulation for retirement
- Structured finance allows redistribution of risk—with more risk taken by top
  - Resulting in more tail inequality
- Increased share of capital (induced by changes in technology or changes in behavior) leads to more inequality
- Increased variance in market-relevant abilities leads to increased inequality in wage and wealth distribution



# Most important change in markets: growth in rents

- Hard to reconcile earlier observations with standard neoclassical model with competition
- Easy to reconcile in model with rents
  - Third factor (land, knowledge)
  - Monopoly power
  - Intellectual property rents
  - Rent-seeking from public sector
  - Can explain new “stylized facts” and many of “puzzles”

# Rents and the Growth in Inequality

- Disparity between growth in wealth (W) and capital (K) reflects an increase in capitalized value of rents, R
  - $W = K + R$
  - Disparity has grown
  - In many models, an increase in R leads to a decrease in real capital accumulation: **R crowds out K.**
  - Decrease in K (relative to what it otherwise would be, or in the rate of increase of K) leads to lower economic growth, at least in the short to medium run
  - Since the wealthy own the assets whose value has increased, the increase in R helps “explain” growth in wealth and income inequality
  - Key message: at least part of the explanation of the increase in R is policy—changes in policy could reduce R, increase K, increasing growth, reducing inequality

# Key observations

- Much of the income of those at the top is capital gains, an increase in the value of existing assets.
- Much of the increase in wealth has been an increase in particular of land values.
- There has been an increase in market concentration in many industries throughout the economy.
- Increases in inter-firm disparities in wages (of individuals of seemingly similar qualifications) account for more of the increase in wage inequality than increases in intra-firm disparities.

# Changes in the structure of the economy over the past third of a century associated with an increase in market power

Some of these are a result of changes in technology and structure of demand

- a) an increase in the importance of sectors with large network externalities, in which naturally there will be one or a few dominant platforms
- b) an increase in the importance of sectors with high fixed costs and low marginal costs (much of the digital and knowledge economy)
- c) an increase in knowledge about how to create, maintain, and extend market power, including the design of contracts that help preclude entry
- d) one of the implications of the move from manufacturing to the service sector economy is an increase in (the average degree of) market power, since services are provided locally, and competition within each locale for the provision of these services may be limited

# Wealth, knowledge and inequality

- Puzzle: Period of low (negative) real interest rates associated with growth of inequality (  $r \ll g$  )
- Scarce factor: **knowledge**
- Knowledge is inequitably distributed
  - With decreasing risk aversion, willing to purchase riskier portfolio
  - Knowledge is a fixed cost: richer individuals purchase more, get higher return for any given risk
  - Advantage increased through insider information
  - Allows them to have a high/high risk portfolio—increasing income inequality at the top

# Increase in market power: largely a result of policy

- **Many of the changes in our economy are a result of changes in policy—rewriting the rules of the market economy**
  - in ways which led to slower growth and more inequality
  - increases in monopoly and monopsony power
  - weakening of countervailing forces—unions
- Strengthening of intellectual property rights has enhanced the market power of those who do make advances in knowledge
- Weakened enforcement of anti-trust
  - New doctrines
- Globalization weakening bargaining power of workers

## *Consequences: Increased rents leads to decreased capital accumulation*

With adverse effects on productivity

$$I + \Delta E = s(Y + \Delta E)$$

Where  $I$  is investment,  $\Delta E$  is the change in equity value as a result of the (anticipated) increase in market power,  $Y$  is national income

$$I = sY - (1 - s) \Delta E,$$

# *Increased rents as explaining the paradoxes of modern growth*

- If capital and wealth were the same, then the observed increase in the wealth income ratio should have led to a decreased share of capital, given the wealth of studies suggesting an aggregate elasticity of substitution less than unity
- Should also have also led to an increase in wages
  - Skilled biased technological change only affects *relative* wages, not appropriate weighted average wage
- Disconnect between productivity and compensation
  - No sudden change in technology that can explain sudden change
  - Can be explained by changes in rules, norms, including globalization
- But paradoxes are resolved if we recognize distinction between *wealth* and *capital*.
  - While wealth/income or wealth/per capita has increased, capital/income and capital/per capita has decreased, at least for many advanced countries



# Important new perspective of inequality

- **Not inevitable consequence of market forces**—not simply the result of the “laws of nature” or the “laws of economics”
  - Cannot be explained within competitive model
  - Though changes in technology can have impacts
- Largely the result of *policy*, of how we structure markets
  - Markets don’t exist in a vacuum
- The rules of the economy were rewritten in the Reagan-Thatcher era and afterwards in ways which led to more inequality and poorer economic performance
  - Significant increases in rents (monopoly rents, land rents, intellectual property rights, rent extraction by corporate executives and financial sector)
  - Weakening of workers’ bargaining position
- These rents increase inequality, reduce economic efficiency, and slow growth
  - With increases in capitalized value of rents “crowding out” real capital accumulation.
- They now have to be rewritten once again, in ways that can reduce inequality and improve economic performance

# Inequality has been a choice

- A result of policies
- How the “rules” of the market economy have been written and implemented
  - Including corporate governance, monetary policy, intellectual property, and anti-trust

# Endogenous economic and political equilibrium

- But these choices themselves need to be viewed as endogenous, as part of a political and economic equilibrium
- We have constructed several models where there are multiple equilibria
  - One with low inequality, another with high inequality
- Economic inequality leads to political inequality
  - With high levels of political inequality rules of game are set to favor the rich
  - Giving rise to and supporting high levels of economic inequality
- Some countries seemed to be trapped in the high inequality equilibrium, others to be in the low inequality equilibrium.

## II. Consequences of inequality

- Large economics literature now suggesting why, even with standard model, **greater inequality leads to poorer economic performance**—through multiple channels
  - Inequality of outcomes related to inequality of opportunity (rungs of ladder are further apart)
    - Those at the bottom aren't able to fulfill their potential
  - Political economy—more divided societies less willing to make investments in education, infrastructure, technology which advance societal performance
    - Worried that a powerful state might use powers for redistribution

# Further adverse effects of inequality

- **Excessive indebtedness of those at the bottom**, giving rise to instability
  - Related to “keeping up with Jones”
- **Adverse effects on morale** of those at the bottom
  - Especially when they feel the system is rigged
  - Less incentive to work hard
  - Example of generalized “efficiency wage” effects
- **Rest of this talk explores effects arising from how inequality affects behavior of individual** (not his opportunity set)

# Effects of inequality with endogenous preferences

- Behavior is affected by perceptions, beliefs, aspirations
  - Including one's beliefs about one's relative standing, competence
- Perceptions, beliefs are affected by performance (as perceived)
  - Those perceptions in turn are affected by those around us, how they perceive us, by our culture
- Aspirations too are endogenous—affected by our surroundings as well as by economic conditions and changes in those conditions
- Evidence supporting each of these claims
- Analysis—what does it imply for societal equilibria, rigidities, change, and policy

# Remainder of this lecture

- A simple model
- Some relevant empirical evidence
- Questions about whether matters are likely to get worse

## a. Simple model: Equilibrium fictions

- Model of an *equilibrium fiction* that rests on empirical evidence that
  - Self-confidence boosts performance
  - Confirmatory bias in beliefs (individuals selectively remember)
  - Categories influence what information individuals collect

Based on Hoff and Stiglitz (2010): “Equilibrium Fictions: A Cognitive Approach to Societal Rigidity,” *American Economic Review*, 100(2), May.



# Simple model of a fiction

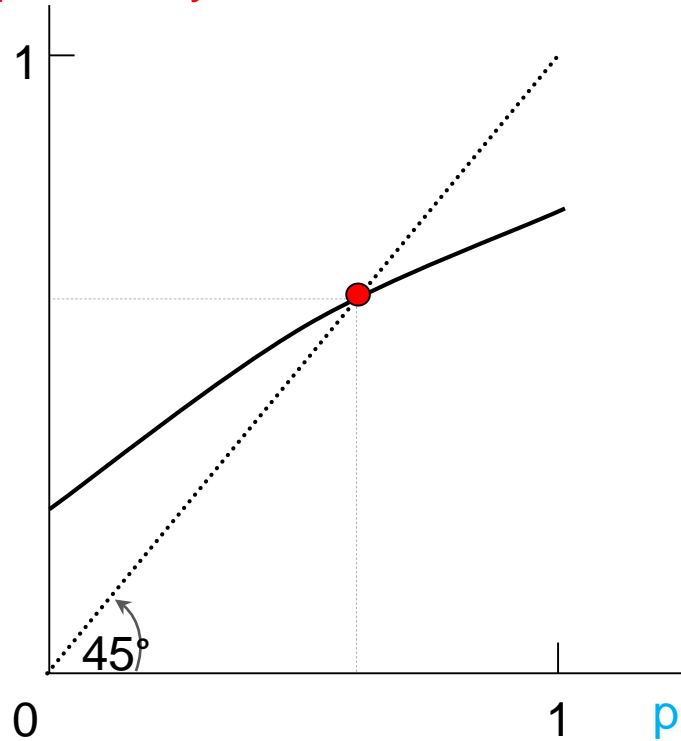
- *Two “races”* - reds and greens
- *Technology* - Individuals can either fail or succeed at a task, & self-confidence enhances success probability

# The technology



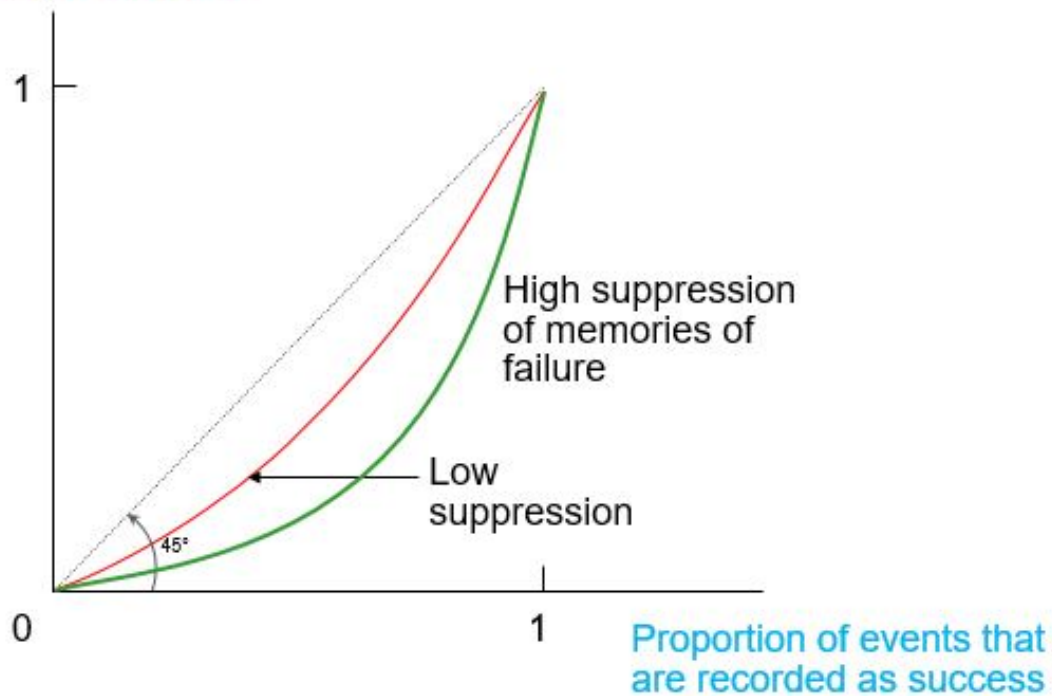
# The rational expectations equilibrium

probability of success



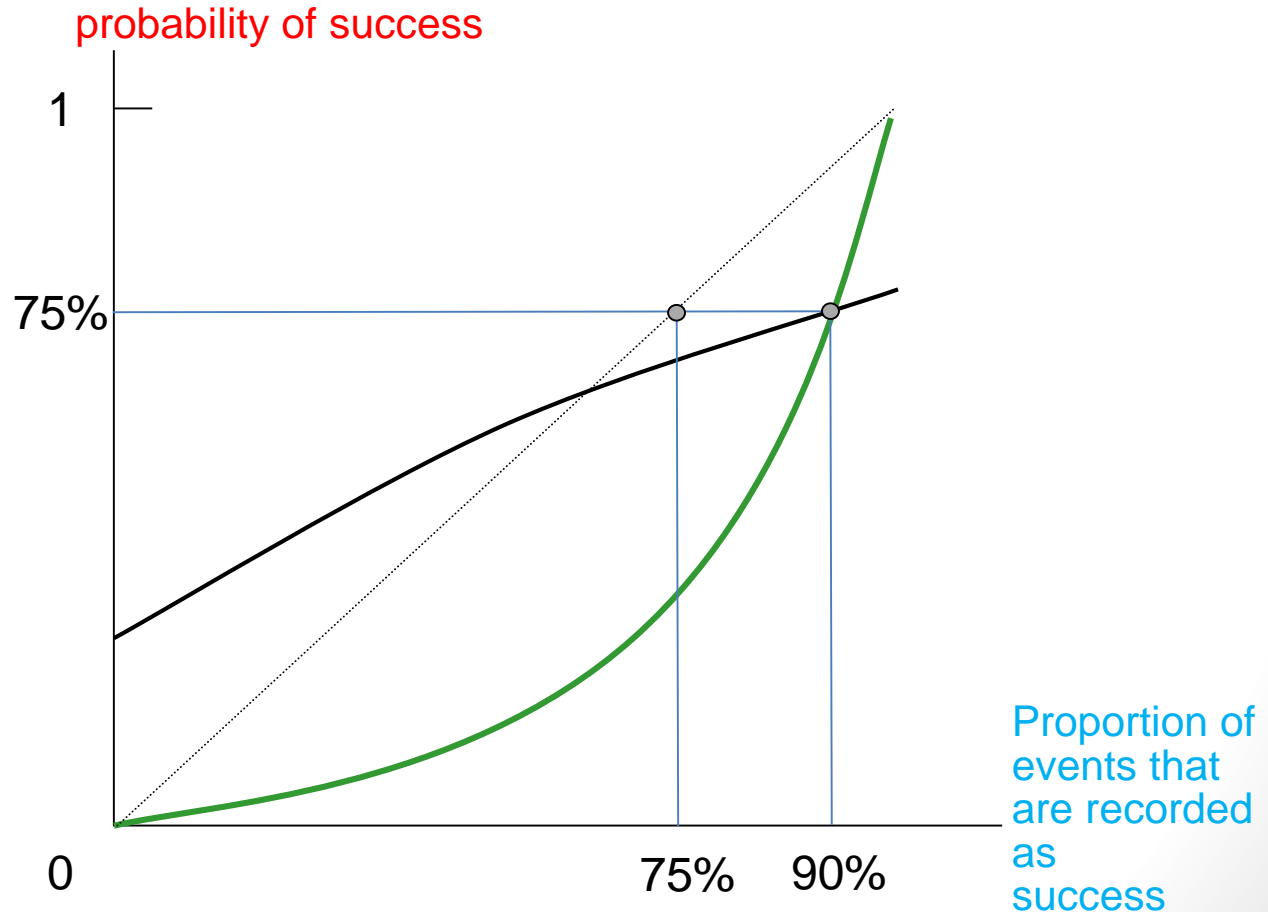
proportion of events that  
are recorded as success

probability of success



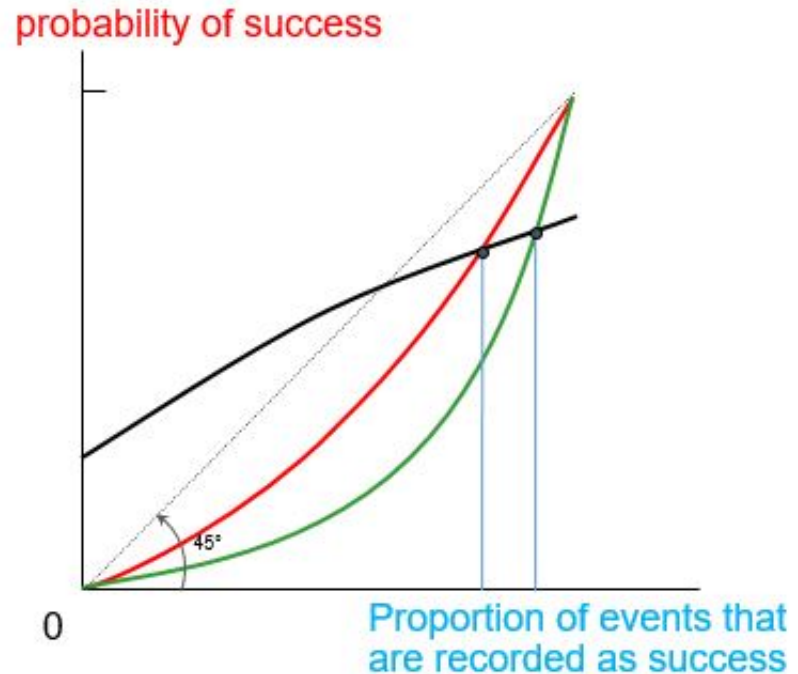
# An “equilibrium fiction”

- Beliefs – 90% success
- Actual success rate is 75%
- But beliefs are consistent with perceptions of actual outcomes (90%)



# In a stable equilibrium, the belief generates a level of performance that is consistent with the perception of that performance

- The result is that a social construct – race – by influencing perceptions is self-fulfilling



## b. Another mechanism by which beliefs affect behavior: the role of identity

Performance affected by *public caste identification* (field experiment)

- High and low caste children perform little differently when caste is not revealed
- But low caste children perform markedly more poorly when caste is publicly identified

*Large plastic sheets with mazes are pinned to the wall. An instructor uses the sheets to teach children how to solve a maze. There are 6 boys from 6<sup>th</sup> and 7<sup>th</sup> grades in each experimental session*







Source: Hoff and Pandey 2006, 2014; Related work: Steele and Aronson, Afridi et al. 2015, Guyon and Huillery 2016

# Further evidence: Self-perceived SES affects behavior

- Higher SES individuals exert more effort in experiment in which there is uncertainty about effects (lab experiment)
  - Belief that they have more control over outcomes
  - attribute outcomes in self-serving way
- Systematically related to perceptions of less control over the events in one's life
- Pitt et al.—evidence that rich violate traffic laws more than others do

## c. Other effects of an identity of low SES or race or caste on behavior

- Willingness to punish norm violations that hurt members of one's own group—a key to the ability to cooperate—is much lower for the low caste than the high caste (Hoff *et al.* 2011)
- But higher caste more likely to engage in destructive “honor” punishments in response to observed “affronts” which impedes the ability to develop new institutions and to engage in cooperative behavior (Brooks *et al.* 2016)

## d. Social context affects perceptions (identity) and behavior

- Increasing economic segregation (Reardan and Bischoff)
  - With education provided locally, with large differentials in quality, result is large differentials in opportunity and outcomes
- Natural experiments confirm potential importance
  - Court ruling in New Delhi required some private schools to take in poor students.
  - Exposure to poor students changed behavior of rich children
    - More generous
    - Less discriminatory
    - More willing to play with poor children
  - Effect not automatic, but driven by regular interactions in small fixed groups to work together to achieve common goals

## e. Social context also affects aspirations

- Aspirations affected by perceptions of what is possible
- Social context affects perceptions of what is possible
- Aspirations affect behavior
  
- Aspirations are also affected by experience
- More generally, increased wealth can lead to higher ambitions, effort, better outcomes
  - Natural experiment in BA—transfer of ownership of squatter property led to changes in beliefs
  - Underlying philosophy of Grameen Micro-credit, some evidence that it worked

# f. Other determinants of aspirations

## An RCT to help the ultra-poor changes 'who the people are'

- An RCT in 6 countries
- It gives beneficiaries a choice of an asset (in India, most choose a cow)
- For about 18 months, it gives training, a weekly allowance, coaching, incentives to save, and psychological support

### RESULTS

- Long-run increases in incomes in excess of program costs in 5 of the 6 countries
- In one country, a 7-year impact has been assessed (Banerjee et al. 2015)
  - Consumption is 26% higher than in the control group
  - Individuals work longer hours, save more, & are happier & healthier
  - The effects almost always GROW over time

# g. Social context may also affect reliance on fast thinking

- Extreme inequality and neighborhood segregation may entrap the disadvantaged
- Residence in a lawless ghetto may lead to System 1 (more automatic thinking) responses that block mobility
- “Becoming a Man” program
  - No academic training; no job training; no paid jobs; no transfers of money or gifts
  - No perception by participants that their self-control has increased, or that an adult in school is there to help them
  - Succeeded in reducing reliance on automatic thinking
    - Evidence in lab experiment
- With important behavioral consequences
  - Participation reduces arrests over the program year for violent crime by 44%
  - Estimated impact on high school graduation: 7-22%
  - Impact of RCT with 5,000 admissions to program in a juvenile jail: Reduced return rates to jail by 21%
- These and other examples show the possibilities of well-designed interventions

# Societal changes may exacerbate problems of inequality going forward

- Increasing demand for jobs that have been “gendered” as female and decreasing demand for those in, say, manufacturing
  - As economy moves to service sector economy and knowledge based economy
    - With higher value placed on a college education
    - Problems will be exacerbated by robotization/ai
  - Will help correct wage bias against women
  - But 40 year trend of decrease in median wages of male workers will continue
    - Even more stark declines for those without college education
  - With political and social consequences
    - Including increase in female headed households
    - An environment which is particularly adverse for males
    - Creating a new poverty trap



# Concluding comments

There can exist not only poverty traps by inequality traps

- Where society gets trapped in an equilibrium with high levels of inequality
- Large adverse consequences for persistent inequality
- Changes in technology/structure of demand can lead the economy to move from an equilibrium with a high level of inequality to one in which there is an even higher level of inequality
- Appropriate policy interventions can reduce the level of inequality

While economic models can help us understand causes and consequences of inequality, a full explanation of what has been happening in advanced countries requires going beyond the standard competitive market framework

- To realize the importance of the rules of the game
- How they've been changed in ways that increase inequality and lower economic performance
- Leading to more rents and lower share of labor
- There are changes that would make the economy both more efficiency and yield a better distribution of income

# Beyond the standard economic model

- But to understand fully inequality, its growth and consequences, and what we can do about it, we have to go further
  - Recognizing the endogeneity of preferences and how they are shaped by our culture
  - Inequalities can reinforce and be reinforced by
    - social identities, aspirations, themselves affected by
    - segregation by income group—by marriage, neighborhood, & schooling
- This broader understanding of some of the sources of inequality gives us a new range of tools with which to address inequality, especially in some of its most adverse aspects.

# Some references

Champernowne, D. G., 1953, "A Model of Income Distribution," *Economic Journal*, Vol. LXVIII, pp. 318-251.

Furman, J. and P. Orszag, (forthcoming) "A Firm-Level Perspective on the Role of Rents in the Rise in Inequality," in M. Guzman, ed. *Economic Theory and Public Policies: Joseph Stiglitz and the Teaching of Economics*, Columbia University Press, New York, NY.

Kuznets, S., 1955, "Economic Growth and Income Inequality", *The American Economic Review*, 45(1): 1--28.

Mattauch, L. D. Klenerty, O. Edenhofer, and J. E. Stiglitz, 2017 "Piketty Meets Pasinetti: On Public Investment and Intelligent Machinery," January

Piketty, Thomas (2014). *Capital in the Twenty-First Century*, Cambridge Massachusetts : The Belknap Press of Harvard University Press

Stiglitz, Joseph E. 1966 "The Distribution of Income and Wealth Among Individuals," Presented at the December 1966 meetings of the Econometric Society, San Francisco , December 29

----1969. "Distribution of Income and Wealth Among Individuals," *Econometrica*, 37(3): 382-397

----2014 "Unemployment and Innovation," NBER Working Paper 20670, November 2014

-----2015, "New Theoretical Perspectives on the Distribution of Income and Wealth Among Individuals: Parts I-IV" NBER Working Papers 21189-21192, May 2015

-----"The Origins of Inequality, and Policies to Contain It," *National Tax Journal* 68(2): 425-448

----- with N. Abernathy, A. Hersh, S. Holmberg and M. Konczal, 2015 *Rewriting the Rules of the American Economy*, A Roosevelt Institute Book, New York: W.W. Norton. Available at at <http://www.rewritetherules.org>