What Economics Can Teach Us About Inequality and Social Policy

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Three Major Recent Contributions of Economics

1. **Supply-Demand-Institutions Framework and Applications**

   --Race between Education & Technology

   --Polarization of the Labor Market

   --Lingering effects of institutions + endogeneity of institutions

2. **Credible Inference Revolution + Big Data = Progress**

   --RCTs, Natural Experiments (IV, RD, and LATE)

   --Neighborhoods vs. Schools: MTO, HCZ, School Lotteries, …

   --Big Admin Data: Top 1%, Long-Run Impacts of Interventions, Economic Mobility (Inter- and Intra-generational mobility)

3. **Behavioral Economics of Poverty, Inequality, and Nudges**

Supply-Demand-Institutions Framework

The supply-demand-institution (SDI) explanation for wage structure/inequality changes has three parts:

(1) Supply and Demand Shocks

(2) Interactions of Market Forces and Institutions

(3) Institutional Changes

Historical and Comparative Perspectives Necessary

Race Between Education and Technology

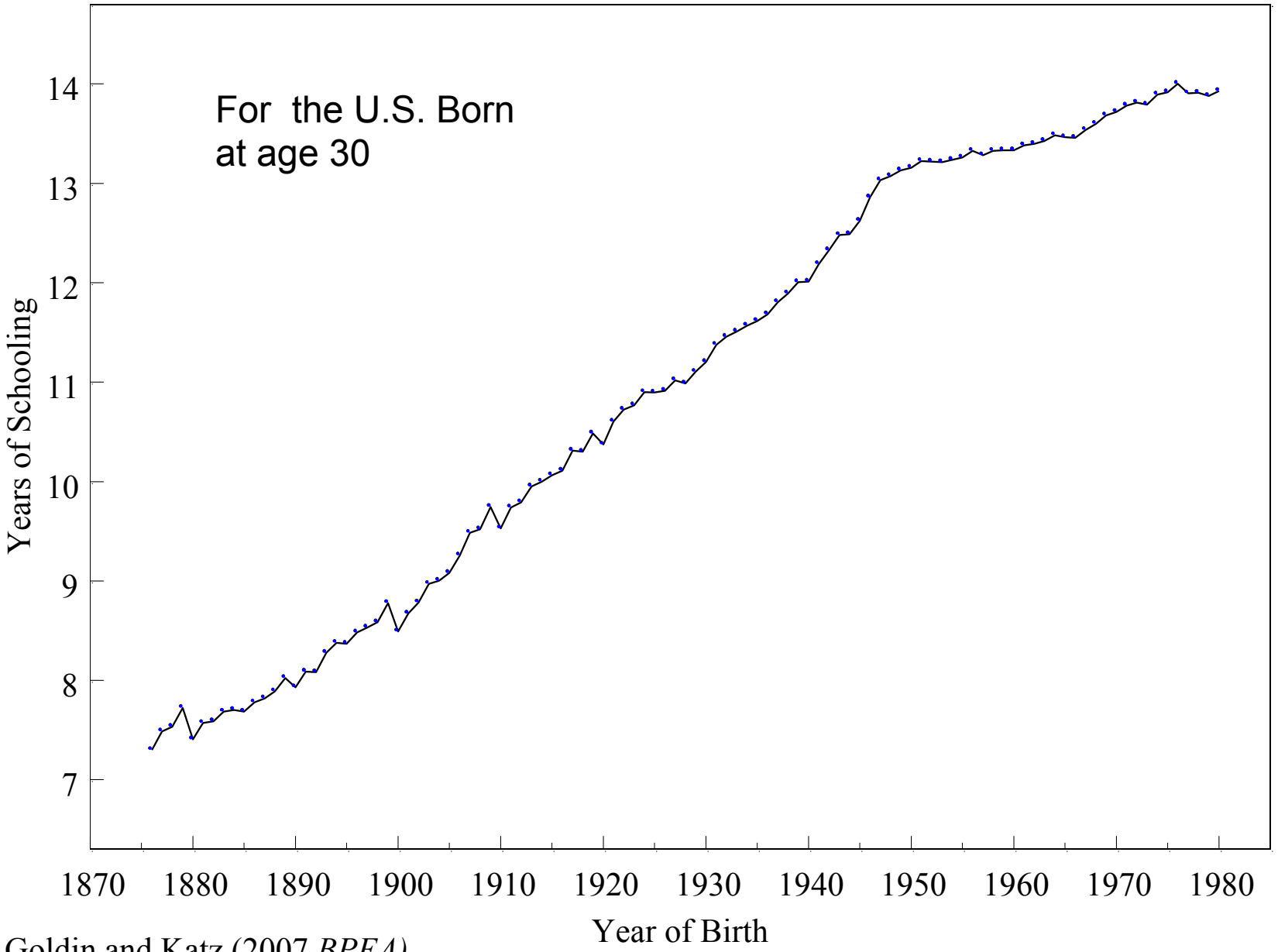
- Rapid secular growth in relative demand for skill driven by SBTC since 19th century (Goldin-Katz 2008; Katz-Margo 2013)

- Variation in rate of growth of supply of skills is key factor: with an acceleration around 1910 with the high school movement, further acceleration in 1970s with baby boom, and sharp deceleration post-1980

- Impact of computers on labor market is more subtle than standard monotonic SBTC view – manual vs. routine vs. abstract tasks -- shift to polarization of labor demand since 1990

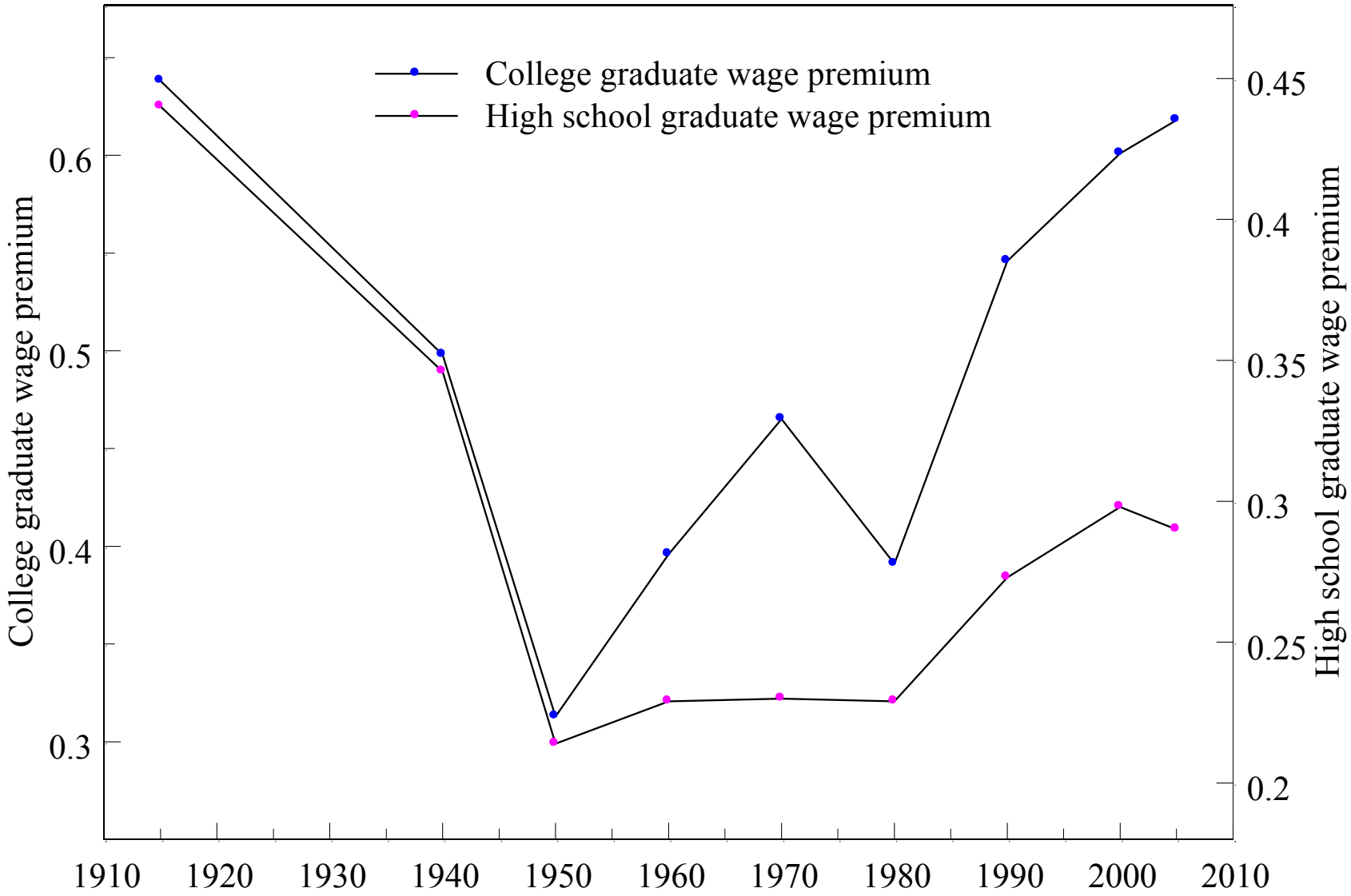
- Institutions needed to explain 1940s wage compression and extent of 1980s inequality explosion

The Human Capital Century: Mean Years of Schooling by Birth Cohort



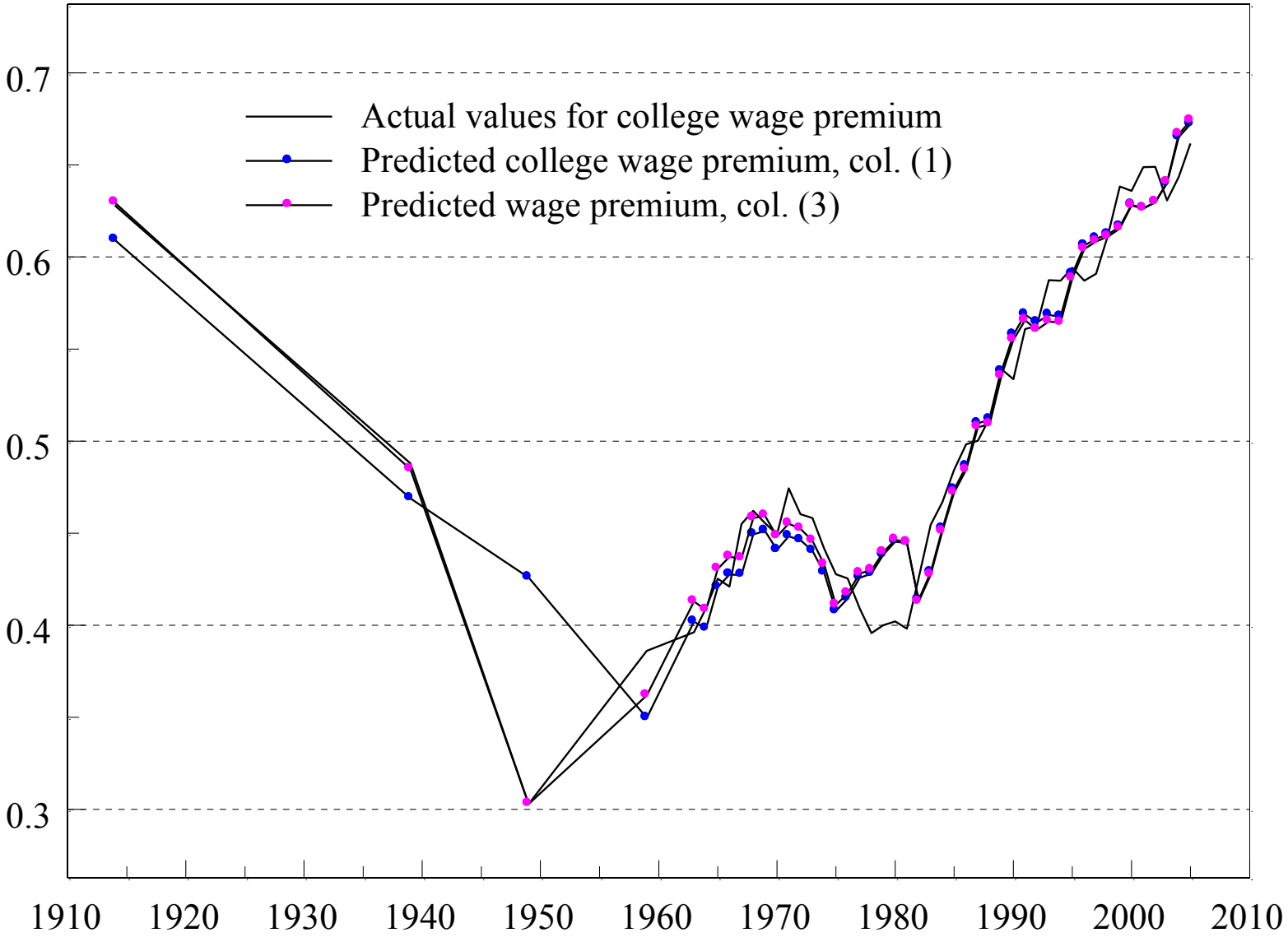
Goldin and Katz (2007 *BPEA)*

College and High School Wage Premiums, 1915 to 2005



Goldin and Katz (2008 *RBET*)

College Wage Premium: 1915 to 2005 and the Canonical Model

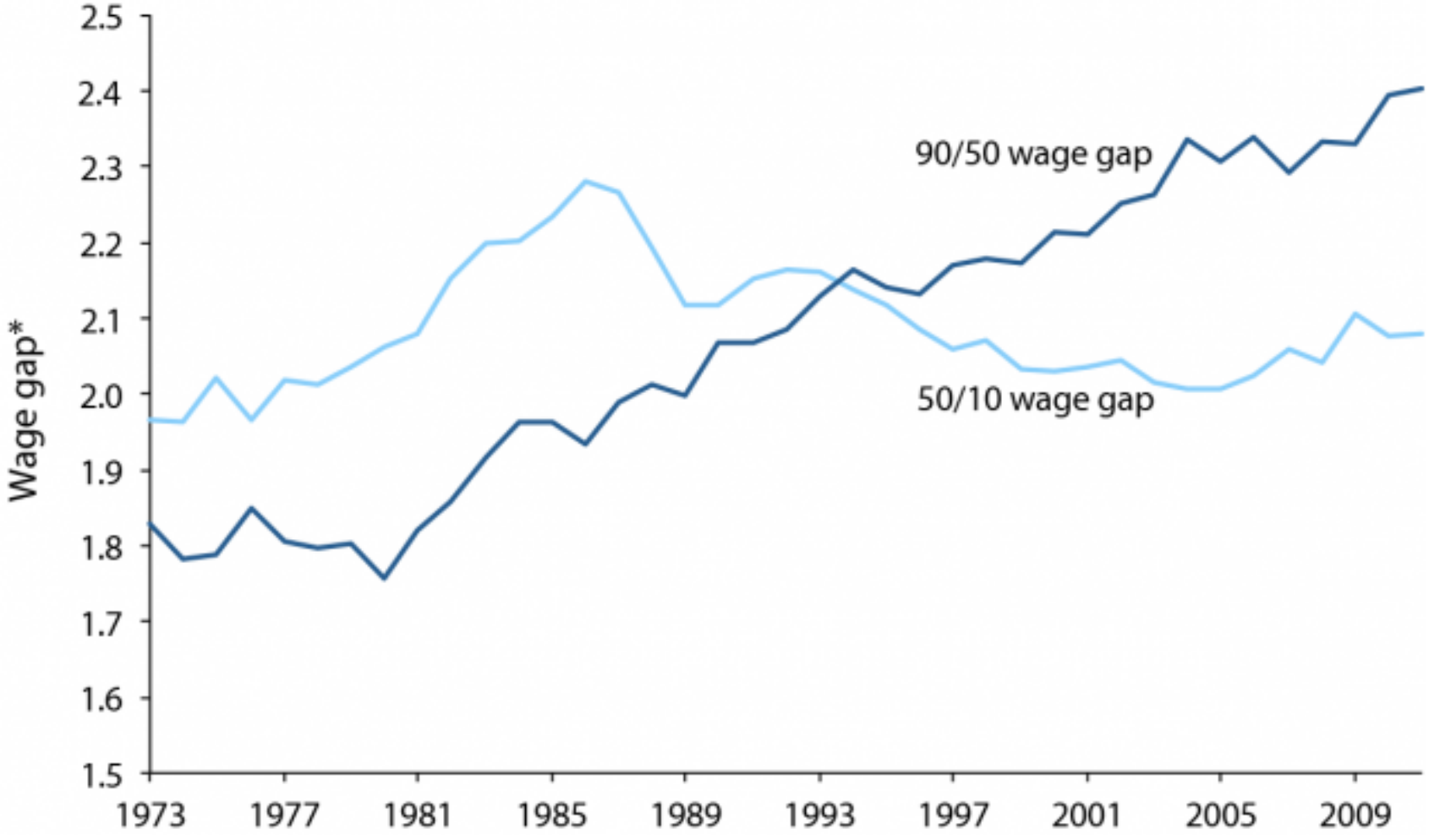


Goldin and Katz (2008) *RBET*

Polarization Hypothesis

1. Exogenous Driving Forces: Computerization (Declining Computer Prices) and Globalization (Reduced Transport/ Communication Costs; China, India)
2. ALM Production Function with Routine and Non-Routine Tasks – Price of Routine Tasks Declines – Substitute Computers and Offshoring
3. Reduced Demand for Routine Manual Jobs (Blue Collar) and Routine Cognitive Jobs (Insurance Processing, Programming, Call Centers) -- declining middle
4. Increased Demand for Problem Solving -- Larger Teams for High-Level Managers and Professionals
5. Little impact on non-routine manual, in-person services

Divergence of Upper- and Lower-Tail Wage Inequality:
Male 90-50 vs. 50-10 Hourly Wage Ratio, 1973 to 2011 CPS MORG



Source: EPI, State of Working America

What Computers Can and Can't Do

Levy and Murnane (2013)

Figure 1: Varieties of Computer Information Processing[10]

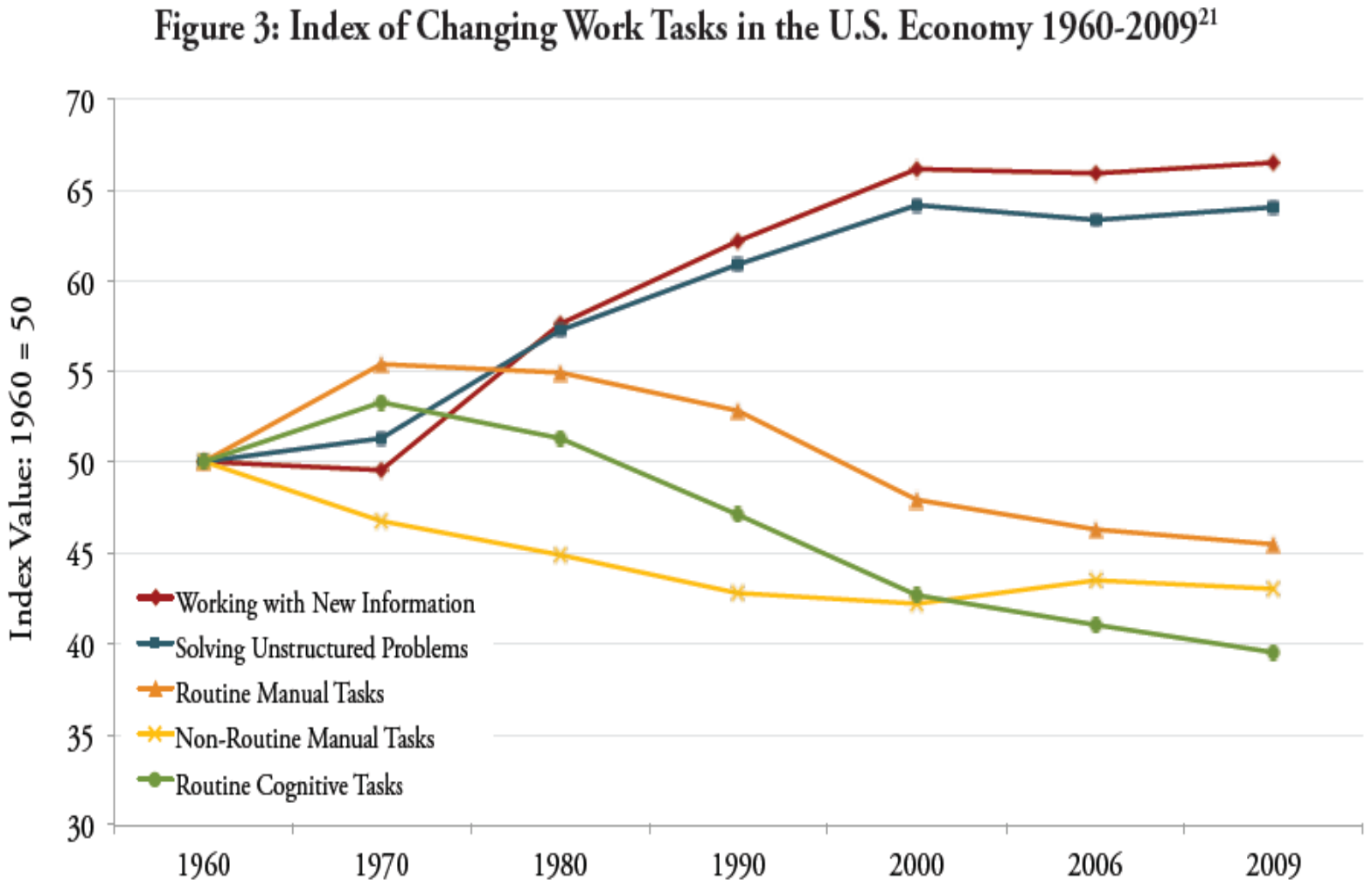
Increasingly Difficult to Program →

	Rules-Based Logic	Pattern Recognition	Human Work
Variety	Computer Processing using Deductive Rules	Computer Processing using Inductive Rules	Rules cannot be Articulated and/or Necessary Information cannot be Obtained
Examples	Calculate Basic Income Taxes Issuing a Boarding Pass	Speech Recognition Predicting a Mortgage Default	Writing a Convincing Legal Brief Moving Furniture into a Third Floor Apartment

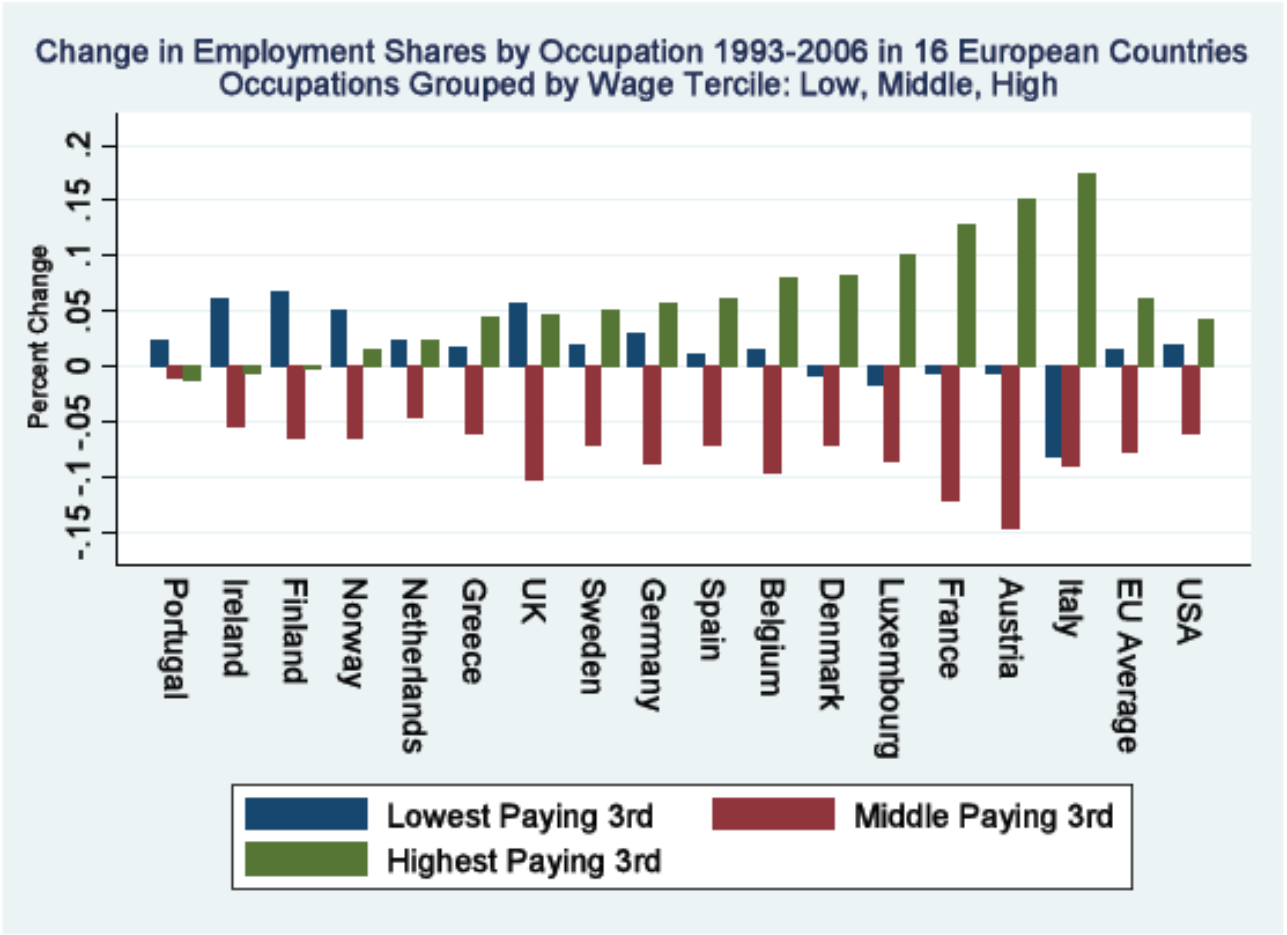
Autor-Levy-Murnane 2003 Taxonomy of Tasks

Task Type	Task Description	Example Occupations	Potential Impact of Computerization
Routine 'Middle Skill'	• 'Rules-based' • Repetitive • Procedural	• Bookkeepers • Assembly line workers	• Direct Substitution
Non-Routine Cognitive ('Abstract') 'High Skill'	• Abstract problem-solving • Mental flexibility	• Scientists • Attorneys • Managers • Doctors	• Strong Complementarity
Non-Routine Manual Tasks ('Manual') 'Low Skill'	• Environmental Adaptability • Interpersonal Adaptability	• Truck drivers • Security guards • Waiters • Maids/Janitors	• Limited Complementarity *or* Substitution

Levy and Murnane (2013) *Dancing with Robots*



Employment Polarization in Europe and the U.S.



Source: Data on EU employment are from from Goos, Manning and Salomons, 2009a. US data are from the May/ORG CPS files for earnings years 1993-2006. The data include all persons ages 16-64 who reported having worked last year, excluding those employed by the military and in agricultural occupations. Occupations are first converted from their respective scheme into 326 occupation groups consistent over the given time period. These occupations are then grouped into three broad categories by wage level.

Some Comments

- Not the first period of employment polarization from SBTC
- Mid to Late 19th century similar polarization of employment in mfg with hallowing out of middle skill (craft) occupations in favor of white collar (high skill) and operative/laborer (low skill)
- Shift from artisanal shop to factory with steam power & then electrification -- Katz-Margo (2013) & Goldin-Katz (1998)
- Rising White collar wage premium, declining artisan wage in mid to late 19th
- Shared prosperity restored with high school movement and rapid expansion of supply of skills
- Progressive Era + New Deal reforms
- How win Race between Education and Technology today?

Credible Inference Revolution

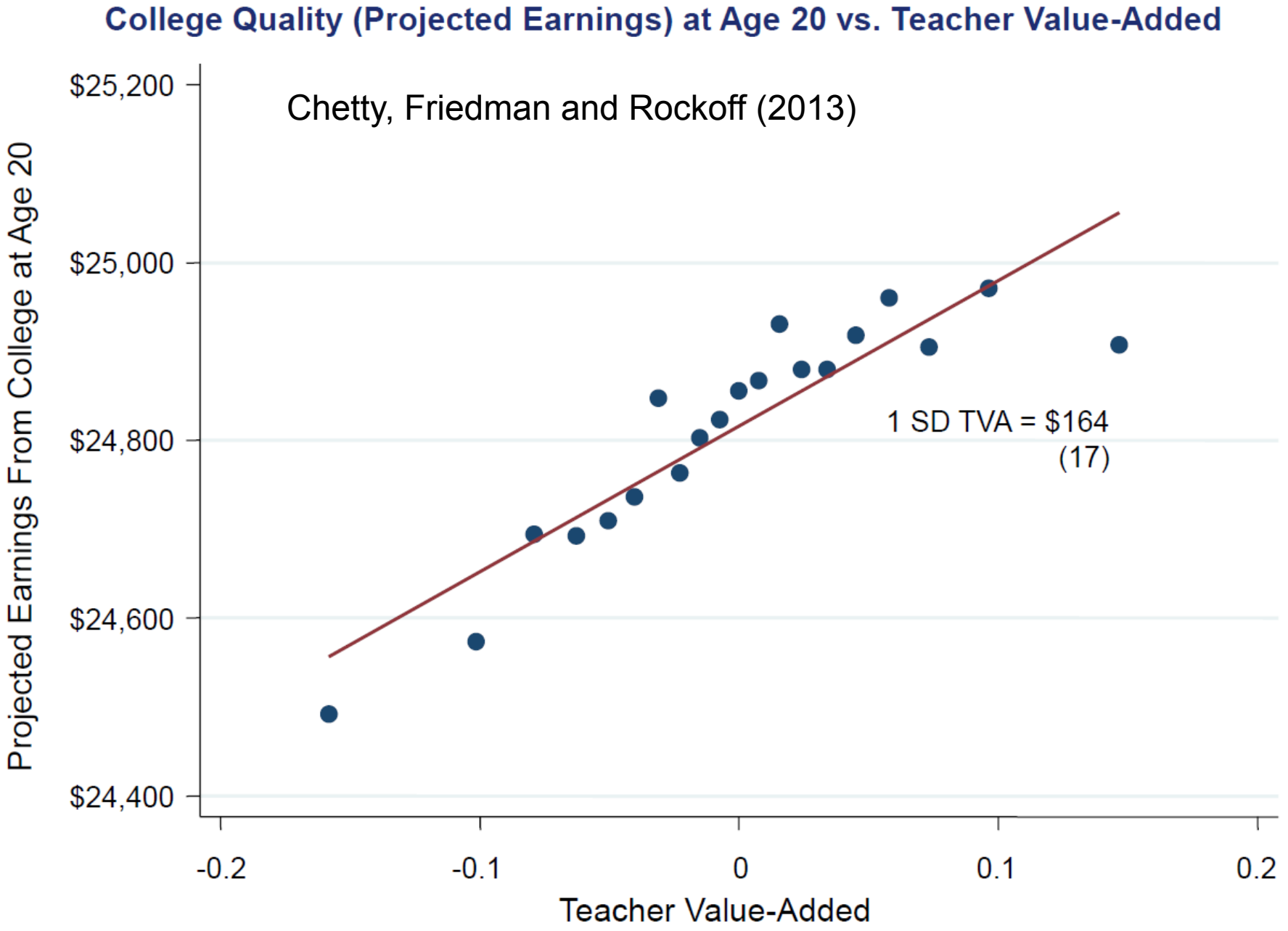
- Natural Experiments: Sharp Policy Changes or Market Shocks and Regression Discontinuities for Causal Inference
- LATE Interpretation for Natural Experiments
- ITT vs. TOT for RCT's
- Frontier: Sufficient Statistics Approach of Chetty and Build Multiple Experiments into Structural Model
- Examples
  - Autor-Dorn-Hanson (2013AER) on impact of China Trade
  - Close Election RD Approaches to Unions and Inequality
  - Moving to Opportunity for Neighborhoods
  - HCZ, Charter School Lotteries, School Choice Lotteries
  - Tennessee Project STAR & Maximum Class Size RD

Neighborhoods vs. Schools

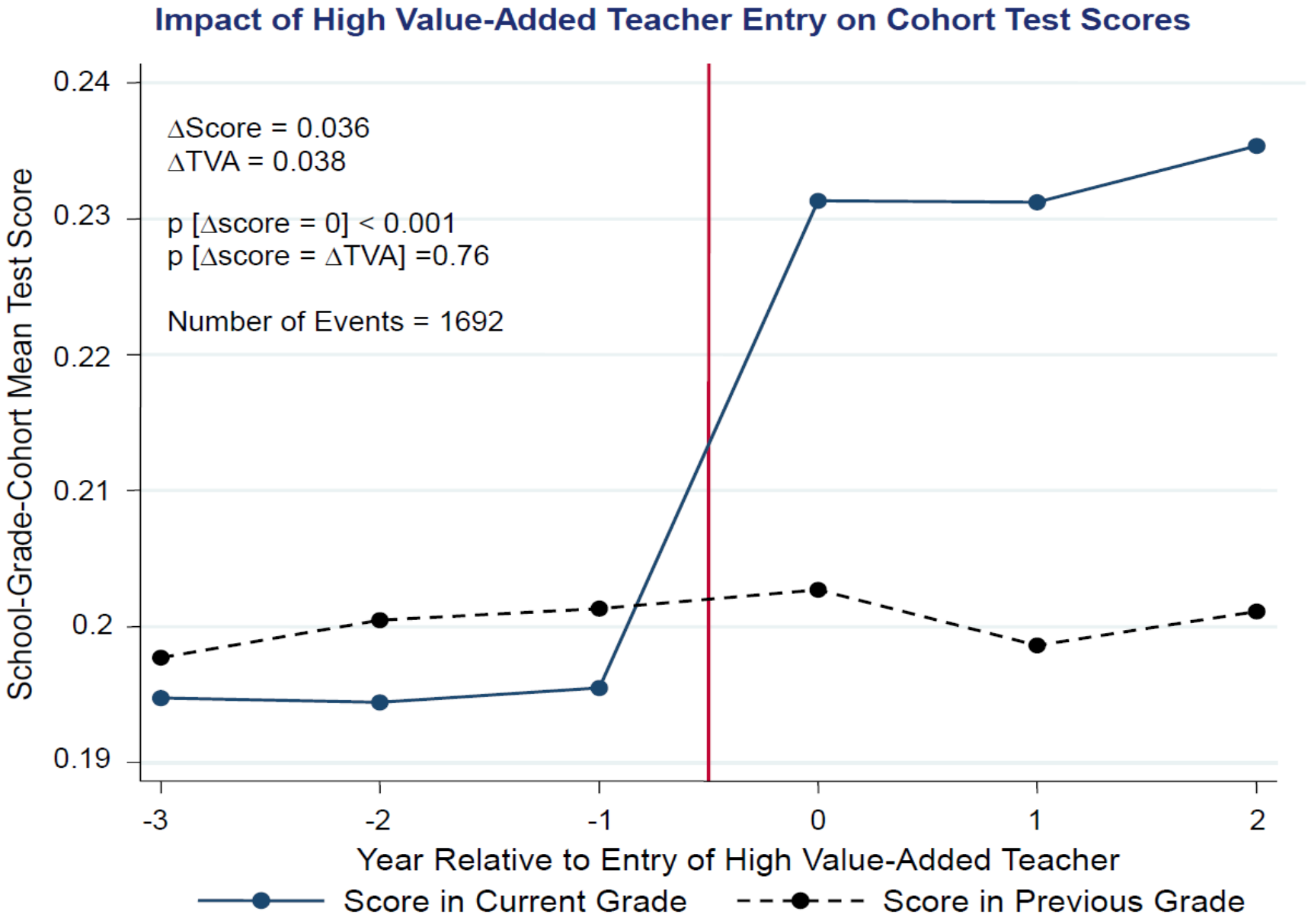
- Improved Knowledge from Credible Inference + Big Data
- MTO -- large change in nghds, little in schools
- HCZ, Tennessee Project STAR, Court-Ordered School Desegregation – large change in schools not in neighborhoods
- Neighborhoods → large direct effects on health and well-being but less on education and economic self-sufficiency
- Schools → Large impacts on educational and economic outcomes – class size (holding teacher quality constant), teacher quality, top Charter schools, small High Schools, …
- How translate into large scale impacts? Micro to Macro
- Mechanism Experiments
- Social Capital and Social Multiplier – Loury, Glaeser, Manski

Big Data Revolution in Economics

- Better Data to Answer Sandy's Big Questions: Intergenerational Mobility, Impacts of Schools, Sources of Opportunity Gaps
- Linked to Credible Inference Approaches and More Open-Minded Model with Social Networks and Behavioral Features
- Last 6 Clark Medals –Athey, Saez, Duflo, Levin, Finkelstein, Chetty
- Finkelstein – Oregon Medicaid Experiment (QJE 2012)
- Raj Chetty and collaborators
  - Tennessee Project STAR linked to IRS data – long-run impacts on outcomes that matter but not test scores
  - Teacher Value Added – long-run impacts
  - EITC social networks and learning
  - Passive vs. Active Savings Policies
  - Geography of Equality of Opportunity in the U.S.

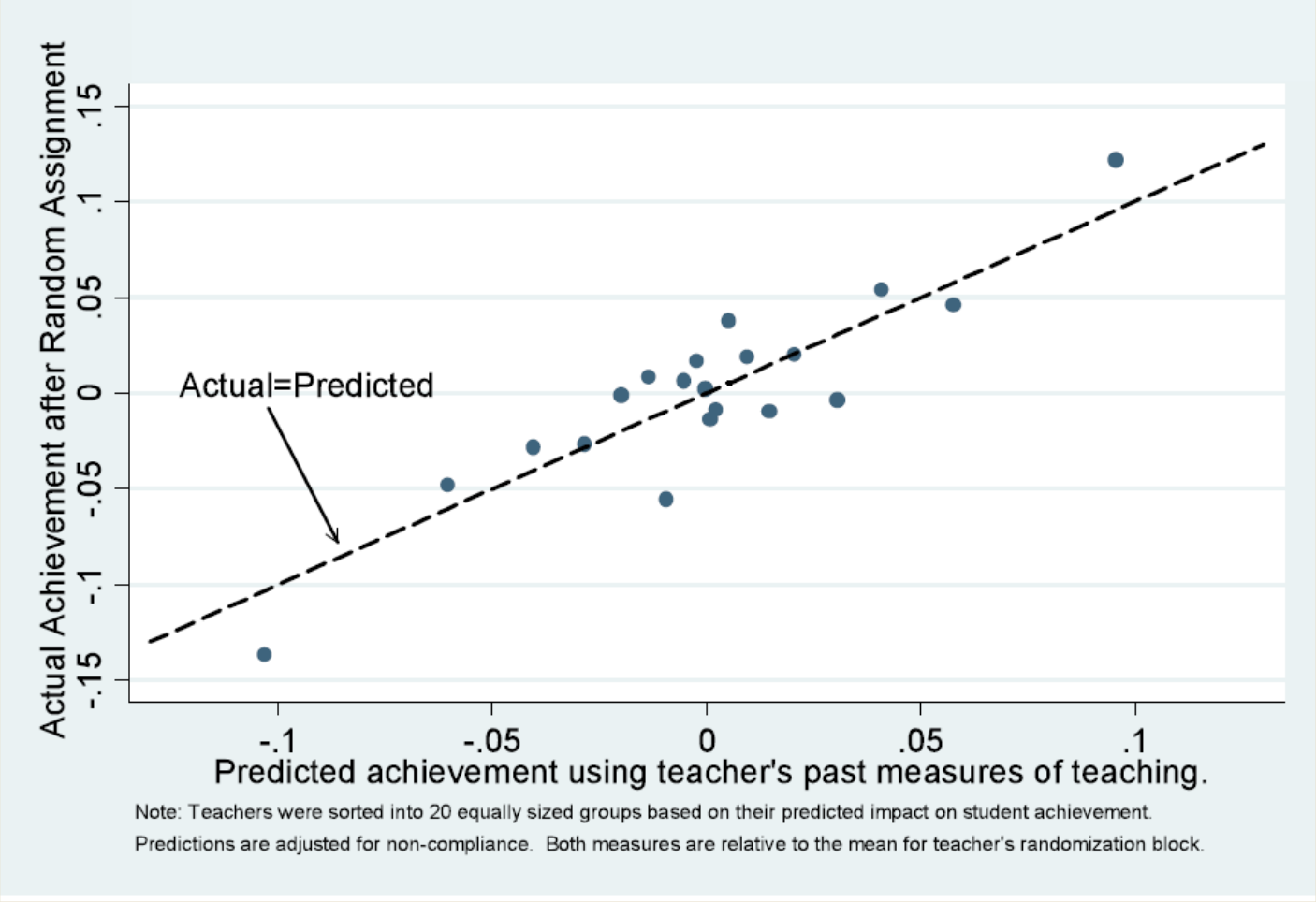

College Quality (Projected Earnings) at Age 20 vs. Teacher Value-Added
Chetty, Friedman and Rockoff (2013)
$25,200
$25,000
$24,800
$24,600
$24,400
Projected Earnings From College at Age 20
1 SD TVA = $164
(17)
-0.2
-0.1
0
0.1
0.2
Teacher Value-Added

Chetty, Friedman, and Rockoff (2013)



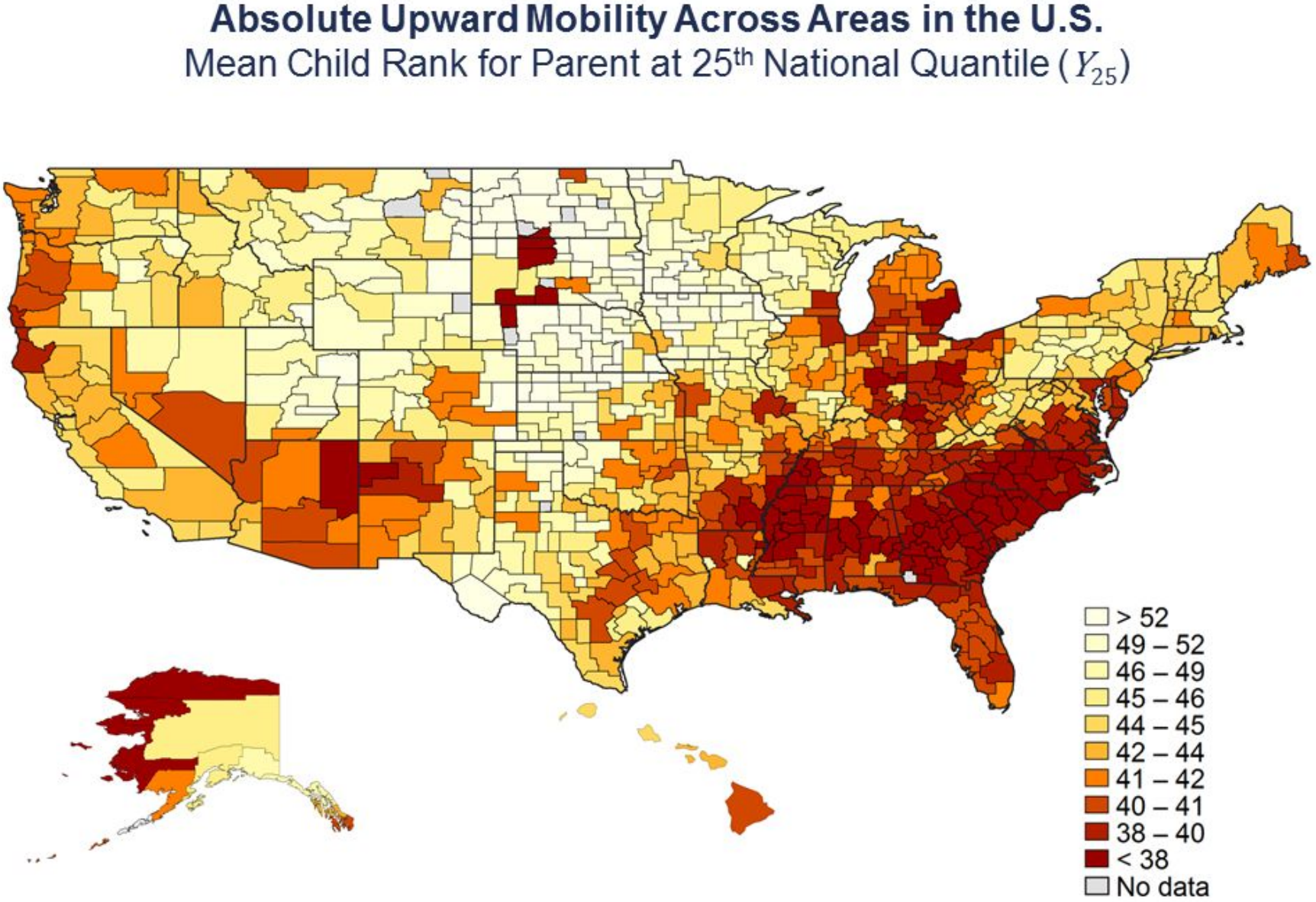
Kane et al. (2013): Measures of Effective Teaching (MET) Study

ACTUAL AND PREDICTED ACHIEVEMENT OF RANDOMIZED CLASSROOMS (MATH)



Note: Teachers were sorted into 20 equally sized groups based on their predicted impact on student achievement.
Predictions are adjusted for non-compliance. Both measures are relative to the mean for teacher's randomization block.

Chetty, Hendren, Kline and Saez (2013)



Note: Lighter Color = More Absolute Upward Mobility

New Frontiers in Inequality Research

- Big Data -- Matched Employer-Employee Longitudinal Data
  - Abowd et al. (EMA 1999): worker vs. establishment effects
  - Card-Kline-Heining (QJE 2013) and role of establishments in rising wage inequality in Germany
  - Transitory vs. Permanent inequality – Parnousi et al. (BPEA 2013)
- Management Practices, Productivity Dispersion and Inequality -- Bloom and Van Reenen (QJE 2007) and follow-up work
- Costs of Misallocation of talent and across firms
  - U.S. work by Hsieh et al. (2013) by gender and race
  - Hsieh and Klenow and misallocation and cross-country Diffs
  - Shift of talent into finance: inequality and growth impacts

Current Challenges

- Going from Micro Causal Estimates to Macro Effects
  - Spillovers, Social Multiplier, General Equilibrium Impacts
  - Political Economy
  - Class size, teacher quality, charter school, training, and ALM policy impacts
  - Multi-Level Clustered RCTs – Crepon et al. (2013 QJE) on French ALM Policies & Macro Labor Models
  - Micro/macro program evaluation: Kline-Moretti (2014 QJE) on TVA and agglomeration; Donaldson-Hornbeck on railroads and market access – test for structure to give link
- Top End Inequality and Labor's share: Rent-sharing/bargaining, robots/IT and human task-replacing technological change
- Policy Analysis: Humans vs. Homo Economicus