Causes and consequences of increasing inequality

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CIGI/INET conference on False Dichotomies
University of Waterloo, November 2012
Overview

• Introduction
  – Stylized facts
  – Standard explanations
    • Skill-biased technological change

• Alternative perspectives
  – Power-biased technological change
  – Mismatch and induced overeducation

• Macro effects
  – Aggregate demand and financial instability

• What can be done?
  – International evidence
Alternative perspectives

• ‘Power biased technical change’
  • Skott and Guy, 2007, Economics Letters

• Induced overeducation
  • Skott, 2005, Journal of Economic Behavior and Organization
  • Skott, 2007, Canadian Journal of Economics

• Macro effects and financial instability
  • Skott, 2012, Review of Radical Political Economics, forthcoming
Great sources


1 INTRODUCTION
Profit share; US corporate business
Source: Piketty and Saez (2007, Figure 1).
Figure 4G  Share of total annual wages received by top earners, 1947–2010

Source: Authors’ analysis of Kopczuk, Saez, and Song (2010) and Social Security Administration wage statistics
“State of working America”, EPI 2012

Figure 4B  Real hourly earnings and compensation of private production and nonsupervisory workers, 1947–2011

Note: Private production and nonsupervisory workers account for more than 80 percent of wage and salary employment.

Figure 4C  Cumulative change in real hourly wages of men, by wage percentile, 1979–2011

Source: Authors’ analysis of Current Population Survey Outgoing Rotation Group microdata
Figure 4D  Cumulative change in real hourly wages of women, by wage percentile, 1979–2011

Source: Authors’ analysis of Current Population Survey Outgoing Rotation Group microdata
Figure 4N  College wage premium, by gender, 1973–2011

* Percent by which wages of college graduates exceed those of otherwise equivalent high school graduates, regression adjusted

Source: Authors’ analysis of Current Population Survey Outgoing Rotation Group microdata
Figure 1N  Elasticities between parental income and sons’ earnings, 1950–2000

Note: The higher the intergenerational elasticity (IGE), the lower the extent of mobility. The IGEs shown are for 40- to 44-year-old sons.

Source: Authors’ analysis of Aaronson and Mazumder (2007, Table 1)
Two “obvious explanations”

- Institutional changes
- Globalization
Figure 4Z: Manufacturing imports as a share of U.S. GDP, 1973–2011

- **Total**
- **Imports from less-developed countries**

Source: Authors’ analysis of United States International Trade Commission Tariff and Trade DataWeb
Figure 4AD  Real value of the minimum wage, 1960–2011

Source: Authors’ analysis of U.S. Department of Labor Wage and Hour Division (2009)
Figure 4AC  Union coverage rate in the United States, 1973–2011

Source: Authors’ analysis of Hirsch and Macpherson (2003) and updates from the Union Membership and Coverage Database
Figure 8
Persons Engaged in Work Stopages as Proportion of All Workers

Levy and Temin, NBER 2007
“Taxes and the Economy: An Economic Analysis of the Top Tax Rates Since 1945” (Congressional Research Service)

Figure 1. Average Tax Rates for the Highest-Income Taxpayers, 1945-2009

Source: CRS calculations using Internal Revenue Service (IRS) Statistics of Income (SOI) information.

Note: The vertical axis is the average tax rate.
Problem

- Are changes in the composition of employment consistent with explanations based on institutional change or globalization?
- Are institutional changes exogenous?
Figure 1: College-HS Wage Gap and Relative Supply
Standard solution

- Skill-biased technological change
- TINA?
2 POWER BIASED TECHNICAL CHANGE
PARTS BIN
RS-2000 Fleet Black Box,
1-865-499-9444: Fleet managers can monitor driver performance as it pertains to obeying the law, safety and keeping operating costs in check (fuel economy, etc.) simply by plugging the Road Safety RS-2000 Fleet Black Box into the OBD II port of any 1996 and newer vehicle. You set the guidelines for high-speed driving, hard cornering, hard braking/acceleration and other aggressive behaviors. According to the manufacturer, the RS-2000 is tamper-proof and offers second-by-second reporting of vehicle speed, G-Force, throttle position and even interior sound level.
The RS-2000 Fleet Black Box™ was designed by Road Safety™ to insure drivers operate fleet vehicles in a safe and responsible manner. ... It is like being able to sit next to every one of your drivers every second they drive.
Co. Their unblinking anywhere, watching exits les. You already knew had no idea how smart are getting.

And Babies ‘R’ Us stores called the Video Inves- surveillance software’s movements between gnize unusual activity.
a shelf at once, for in- that’s normally kept and the system alerts k room—or pacing the
r screen. The system can predict the ends of aisles, behind floor disen movement that might indicate a in up before it leads to a slip-and-fall someone opens a back door at 2 a.m., in and link it with snapshots of the door. Alerts, complete with images, keeping retailers informed 24/7, says or strategic marketing at IntelliVid makes the Video Investigator system.

No part of a store churns up more data than cash registers. This is also where employee theft is most likely to pop up. … With the press of a button, managers can highlight irregular register transactions on their computers and pull up corresponding video. This could enable them to catch cashiers who cut deals for their friends or pocket cash refunds themselves.

Business Week, p. 48-50
Workers’ power

• ICT and firms’ ability to
  – monitor what workers do
  – the state of nature
  – manage information flows

• Increased sensitivity of firing to effort
Production

Two types of workers
Complete symmetry (except for monitoring)
No mismatch
Identical firms

Production function: 

$$Y = F(e_HN_H, e_LN_L, K)$$
Effort

Workers’ objective function: \( V^i = p^i(e_i)[w_i - v(e_i) - h^i(\bar{w}_i, b, u_i)] \)

First order condition for a maximum: \(-p^i v' + (w_i - v - h^i)p^{i'} = 0\)

or \( e_i = f^i(w_i, \bar{w}_i, b, u_i) \) with \( f^i_w > 0, f^i_{\bar{w}} < 0, f^i_b < 0, f^i_u > 0 \)
Equilibrium

Wage setting: \( \frac{e_i w_i}{e_i} = 1 \)

Employment: \( w_i = e_i F_i (e_{LN_L}, e_{HN_H}, K) \)

Equilibrium/symmetry: \( w_i = \bar{w}_i \)

→ solutions for the endogenous variables \((w_i, e_i, N_i)\) as functions of the parameters \(\mu_i\) that describe the technology.
Power biased technical change

• Improved monitoring corresponds to an increase in the sensitivity of the firing risk to changes in effort
• Formally, the elasticity of the p-function increases
Specific function forms

Functional forms:

\[ Y = A \left\{ \frac{2}{3} \left( \left[ \frac{1}{2} (e_L N_L)^{-\rho_1} + \frac{1}{2} (e_H N_H)^{-\rho_1} \right]^{-1/\rho_1} \right)^{-\rho_2} + \frac{1}{3} K^{-\rho_2} \right\}^{-1/\rho_2} \]

\[ \nu(e_i) = e_i^\gamma; \quad \gamma > 1 \]

\[ \frac{p^i e_i}{p^i} = \mu_i; \quad \mu_i > 0 \]

\[ h^i = \frac{(r+\delta)u_i}{ru_i+\delta} b + \frac{\delta(1-u_i)}{ru_i+\delta} (\tilde{w}_i - \nu(\tilde{e}_i)) \]

Improved monitoring \(\rightarrow\) greater sensitivity of the firing rate to variations in effort
\(\rightarrow\) larger value of \(\mu_i\)
Numerical example

1a: Benchmark case, $\sigma_1 = \sigma_2 = 0.5$

<table>
<thead>
<tr>
<th>$\mu_L$</th>
<th>$e_L$</th>
<th>$w_L$</th>
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<td>23.4</td>
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<td>0.251</td>
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<td>27.5</td>
<td>0.236</td>
<td>25.9</td>
</tr>
</tbody>
</table>
Implications of PBTC

- Falling wages
- Reduced employment if complementarity between low and high power jobs
- Increasing work intensity
- PBTC need not be welfare enhancing
Intuition

• PBTC increases the sensitivity of firing to effort
  – Agency problem attenuated
  – Smaller wage premium
  – Larger effort (seen in the data)
• Increased effort raises effective employment \((e_LN_L)\)
  or reduces low-power employment
• Complementarity between low and high power jobs implies
  \(w_L \downarrow \text{and } / \text{ or } N_L \downarrow\)
Homogeneous-labor case

- Assume complementarity between labor and capital (e.g. trucks and truck drivers)
- Better monitoring leads to lower wages and greater work intensity
- Greater intensity implies fewer workers per unit of freight
- Reduced wage and employment if freight demand is inelastic
A broader view: coordination and control

• ICT as constraints on large companies
• Examples:
  – Telegraph – telephone – current ICT
  – Need for “pre-processing”: rules and procedures
• Rigid supply systems
  – Vertical integration or outsourcing?
PBTC, flexibility and institutions

'Great compression' facilitated by vertical integration and inflexible production

- Firms vulnerable to interruptions
- 'Work-to-rule' as a threat
- Unions
  - Conflict resolution (e.g. prevent wildcat strikes)
  - Allow flexibility (voice, fair treatment when violating rules)
Wisconsin Code Chapter 111. Employment relations.

- public employees, elected officials and the public itself all have an interest in
  - “industrial peace, regular and adequate income for the employee, and uninterrupted production of goods and services.”
- toward that end,
  - “an employee has the right, if the employee desires, to associate with others in organizing and bargaining collectively through representatives of the employee’s own choosing, without intimidation or coercion from any source.”
PBTC and international evidence

• Firing risk describes firm behavior and is subject to constraints
  – Technology
  – Regulation
  – Institutions

• Regulatory constraints and labor rights
  – Employment protection
  – Strong unions

• International differences in
  – Inequality
  – Regulatory and institutional constraints
Dine rettigheder på jobbet
Her kan du læse om dine rettigheder i forhold til overvågning på arbejdspladsen. Du er sikret via lovgivningen - men især via overenskomsterne.

Det siger lovgivningen om overvågning
Her kan du læse om, hvad din arbejdsgiver er forpligtet til, hvis han eller hun indfører overvågning. Og hvad du som medarbejder har ret til.

Det siger overenskomster om overvågning
Du er sikret meget via overenskomsterne, når det kommer til overvågning.

Sådan tackler du overvågning
Her kan du få gode råd til, hvordan du kan forholde dig til overvågning på arbejdspladsen.

Bliver du overvåget?
I dette tema sætter HK fokus på overvågning på arbejdspladsen. Har du en historie om overvågning, du vil fortælle os?
Eller har du taget et billede af, hvordan overvågning foregår på din arbejdsplads?
Så mail det til HK's kommunikationsafdeling ved at klikke her.
Eller send en SMS eller MMS på 61 55 27 95.
3 CEOs AND THE TOP END
### Table 4.42 Role of executives and financial sector in income growth of top 1.0% and top 0.1%, 1979–2005

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Figure 4AH  CEO-to-worker compensation ratio (options granted and options realized), 1965–2011

Note: "Options granted" compensation series data include salaries, bonuses, restricted stock grants, options granted, and long-term incentive payouts for CEOs at the top 350 U.S. firms ranked by sales. "Options realized" compensation series data include salaries, bonuses, restricted stock grants, options exercised, and long-term incentive payouts for CEOs at the top 350 firms ranked by sales.

PBTC and CEO compensation

‘Efficiency wage’ theory

– Increased flexibility and scope of decisions
  • Increased marginal product of effort (=SBTC?)

– Increased flexibility and greater uncertainty
  • Little effective ‘monitoring’ of top managers
  • Performance pay contingent on outcome, not actions

– ‘General skills’
  • Mobility and fall-back position
A small model

- Profits depend on CEO ‘effort’ and a random component
- New flexibility implies
  - Profits more sensitive to effort
  - Larger variance of the random shock
- Implication:
  - Greater sensitive to effort *may* alleviate the agency problem and *reduce* pay
  - Greater uncertainty aggravates the agency problem and raises pay
Efficiency wages and ‘fairness norms’

Compensation norms

– Comparison groups
  • Other ceo’s (Lake Wobegon effects)
  • Finance
  • The firm’s own employees

Akerlof and Yellen, QJE (1990)
Skott, JEBO (2005)
Elson & Ferrere, J. of Corporation Law (2013)
Incompetence -- do shareholders know what they get?

• Board capture

• “It is not the money-grabbing culture that has caused the greatest problems: we have seriously underestimated the danger of incompetence.”
  
  Boudewijn de Bruin, Professor of Financial Ethics, University of Groningen

• “Well, if you were hoping for a Perry Mason moment — a scene in which the witness blurts out: “Yes! I admit it! I did it! And I’m glad!” — the hearing was disappointing. What you got, instead, was witnesses blurting out: “Yes! I admit it! I’m clueless.”

  Krugman NYT 1/14/2010 on the hearings of the Financial Crisis Inquiry Commission)
4 MISMATCH AND INDUCED OVEREDUCATION
College Grads Find Retail a (Meager) Route to Job Market
By Michael Dolgow

For college graduates, it seems almost as if 30 is the new 10. Over-educated, underemployed, and disgruntled, many grads saddled by debt are waiting—often in their parents’ homes—for a chance to break into a career in the field they studied.

Students with advanced degrees have been unable to find jobs consistent with their skill set, leading to a heavy influx of overqualified young people in retail positions that typically require no more than a high school diploma. Almost 30 percent of 25-to-29-year-old college graduates now work in occupations that do not require higher education, while for those aged 20 to 24, the figure is over 39 percent.
“State of working America”, EPI 2012

**Figure 4AK** Underemployment of college graduates, by age, 2000–2010

Note: Underemployment is defined as college graduates working in occupations that do not require a college degree to perform the work.

Source: Authors’ analysis of Fogg and Harrington (2011, Table 1)
Q. During the recession, you needed a job and wound up taking one for which you are overqualified. Although you were initially grateful just to have the work, you now feel bored and depressed. Is there any way to change that?
Figure 3: Distribution of the Employed Labor Force

Note: Source is CPS May-ORG. High-skil is some college and above. High-tech is GED>4.
Is this important?

- Questions the education strategy
- Do standard comparative statics carry over to a world with large-scale mismatch?
A model of endogenous overeducation

- High-skill and low-skill workers
- Good (high-tech) and bad (low-tech) jobs
- Mismatch determined endogenously
  - If high-skill workers are rationed in good jobs, some will move into bad jobs
  - Extended Shapiro-Stiglitz setting
No-shirking conditions

• Value functions

\[ \rho V_{HH} = w_{HH} - e_{HH} - p(V_{HH} - V_{HU}) \]
\[ = w_{HH} - (p + \delta)(V_{HH} - V_{HU}) \]
\[ \rho V_{HL} = w_{HL} - e_{HL} - p(V_{HL} - V_{HU}) + q_{HLH}(V_{HH} - V_{HL}) \]
\[ = w_{HL} - (p + \delta)(V_{HL} - V_{HU}) + q_{HLH}(V_{HH} - V_{HL}) \]
\[ \rho V_{LL} = w_{LL} - e_{LL} - p(V_{LL} - V_{LU}) \]
\[ = w_{LL} - (p + \delta)(V_{LL} - V_{LU}) \]

• No shirking

\[ V_{HH} - V_{HU} = \frac{e_{HH}}{\delta} \]
\[ V_{HL} - V_{HU} = \frac{e_{HL}}{\delta} \]
\[ V_{LL} - V_{LU} = \frac{e_{LL}}{\delta} \]
• Unemployment

\[ \rho V_{HU} = q_{HUH}(V_{HH} - V_{HU}) + q_{HUL}(V_{HL} - V_{HU}) \]
\[ \rho V_{LU} = q_{LUL}(V_{LL} - V_{LU}) \]

• Transition rates

\[ q_{HH}(H - N_H) = pN_H \]
\[ q_{HUL}(H - N_H - N_{HL}) = pN_{HL} + q_{HHN_{HL}} \]
\[ q_{LUL}(L - N_{LL}) = pN_{LL} \]
Wage equations

\[ w_{HH} = e_{HL} \frac{\delta + \rho + p \frac{H}{H-N_H-N_{HL}}}{\delta} + (e_{HH} - e_{HL}) \frac{\delta + \rho + p \frac{H}{H-N_H}}{\delta} \]

\[ w_{HL} = e_{HL} \frac{\delta + \rho + p \frac{H}{H-N_H-N_{HL}}}{\delta} \]

\[ w_{LL} = e_{LL} \frac{\delta + \rho + p \frac{L}{L-N_{LL}}}{\delta} \]
Production

• Production function

\[ Y = F(N_H, N_L) \]

• First order conditions

\[ w_H = F_1(N_H, N_L) \]
\[ w_L = F_2(N_H, N_L) \]
Equilibrium and comparative statics

Paradoxical effects

– Neutral shifts in production techniques may affect the relative wage and the relative employment rate of high-skill workers in the same direction.

– Because it hurts the employment prospects of low-skill workers, an increase in the supply of high-skill labor can produce an increase in the skill premium.
Minimum wage

- Binding for low-tech but not for high-tech jobs
- Standard “wage equation” not binding for one or the other skill group in low-tech jobs
- Two cases:
  - Firms prefer low-skill workers in low-tech jobs
  - Firms prefer high-skill workers in low-tech jobs
Table 1: Employment and wage effects of changes in the minimum wage when firms prefer low-skill workers in low-tech jobs

\[ (L = H = 1, e_{LL} = 1.3, e_{HL} = 0.5, e_{HH} = 2, Y = 5N_{H}^{0.5}N_{L}^{0.5} ) \]

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<thead>
<tr>
<th>( w )</th>
<th>( N_{LL} )</th>
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<td>0.67</td>
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Intuition

• Rise in minimum wage increases employment of low-skill workers (their no-shirking constraint is binding)
• Employment of high-skill workers in low-tech jobs falls and this has adverse effects on the fallback position of high-skill workers in high-tech jobs
• The no-shirking condition (‘supply curve’) for high-skill workers in high-tech jobs shifts down
• This downward shift in the ‘supply curve’ may dominate the downward shift in the demand curve (from FOC with a higher wage in low-tech jobs)
Implications

- Reduction in minimum wage can
  - Increase wage inequality
  - Shift employment towards high-skill workers
  - Reduce aggregate employment

- Low-skill workers suffer a double blow of falling employment as well as falling wages
Figure 4AD  Real value of the minimum wage, 1960–2011

Source: Authors’ analysis of U.S. Department of Labor Wage and Hour Division (2009)
Figure 4AF  Real value of the federal minimum wage and share of workforce covered by higher state minimums, 1979–2011

Source: Authors’ analysis of U.S. Department of Labor (2009) and Cooper (2012)
<table>
<thead>
<tr>
<th></th>
<th>Time series regressions</th>
<th></th>
<th>State panel regressions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS</td>
<td>GLS-AR(1)</td>
<td>FE</td>
<td>FE + State trends</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Time trend</td>
<td>–0.003*</td>
<td>–0.001</td>
<td>–0.001**</td>
<td>–0.001***</td>
</tr>
<tr>
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<td>[0.002]</td>
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<tr>
<td>ln w</td>
<td>–0.017</td>
<td>–0.015</td>
<td>–0.024**</td>
<td>–0.030***</td>
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<tr>
<td>ln (H/L)</td>
<td>0.029</td>
<td>0.033</td>
<td>–0.012**</td>
<td>–0.004</td>
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<td>[0.047]</td>
<td>[0.022]</td>
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<tr>
<td>Constant</td>
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<td>0.124***</td>
<td>0.133***</td>
<td>0.143***</td>
</tr>
<tr>
<td></td>
<td>[0.030]</td>
<td>[0.035]</td>
<td>[0.005]</td>
<td>[0.005]</td>
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<tr>
<td>Obs</td>
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<td>96</td>
<td>4896</td>
<td>4896</td>
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<tr>
<td>R-Squared</td>
<td>0.412</td>
<td>0.774</td>
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<td>0.247</td>
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<tr>
<td>DW</td>
<td>0.112</td>
<td>1.120</td>
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</table>

Notes: Dependent variable is the unemployment rate for low-skill workers (0–1 range). Regression (2) assumes the error term follows an AR(1) process. All regressions include quarter dummies. Panel regressions include 51 state fixed effects. Regressions (4)–(5) include state-specific linear time trends. Standard errors in brackets.

* Significant at 10% level.
** Significant at 5% level.
*** Significant at 1% level.
Table 3

<table>
<thead>
<tr>
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<tr>
<td></td>
<td>OLS</td>
<td>GLS-AR(1)</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Time trend</td>
<td>-0.001*</td>
<td>-0.000</td>
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<tr>
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<tr>
<td>ln w</td>
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<tr>
<td>ln H/L</td>
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<tr>
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Notes: Dependent variable is the unemployment rate for high-skill workers (0–1 range). Regression (2) assumes the error term follows an AR(1) process. All regressions include quarter dummies. Panel regressions include 51 state fixed effects. Regressions (4)–(5) include state-specific linear time trends. Standard errors in brackets.

* Significant at 10% level.
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*** Significant at 1% level.
Table 5

<table>
<thead>
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<td>FE + State trends</td>
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<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Time trend</td>
<td>-0.003***</td>
<td>-0.003***</td>
<td>-0.003***</td>
<td>-0.001***</td>
</tr>
<tr>
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<td>[0.000]</td>
<td>[0.000]</td>
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<td>[0.000]</td>
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<tr>
<td>ln w</td>
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<td>-0.017***</td>
<td>-0.017**</td>
<td>-0.022***</td>
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<td></td>
<td>[0.005]</td>
<td>[0.005]</td>
<td>[0.008]</td>
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<tr>
<td>ln (H/L)</td>
<td>0.168***</td>
<td>0.169***</td>
<td>0.149***</td>
<td>0.110***</td>
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<tr>
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<td>[0.012]</td>
<td>[0.011]</td>
<td>[0.014]</td>
<td>[0.002]</td>
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<tr>
<td>u_t (HP-dev)</td>
<td>0.209***</td>
<td>0.128*</td>
<td>0.094***</td>
<td>0.092***</td>
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<td>[0.057]</td>
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<tr>
<td>Constant</td>
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<td>0.287***</td>
<td>0.276***</td>
<td>0.265***</td>
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<td>[0.007]</td>
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<td>Obs</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>4896</td>
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<tr>
<td>R-Squared</td>
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<td>0.962</td>
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<td>DW</td>
<td>1.011</td>
<td>1.246</td>
<td>2.142</td>
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</table>

Notes: Dependent variable is the over-education rate (range 0–1). Regression (3) assumes the error term follows an AR(1) process. All regressions include quarter dummies. Panel regressions include 51 state fixed effects. Regressions (6)–(8) include state-specific linear time trends. Standard errors in brackets.

* Significant at 10% level.
** Significant at 5% level.
*** Significant at 1% level.
Spurious correlation?

• Autor et al. (2008)
  – Correlation is "unlikely to provide causal estimates of minimum-wage impacts"; instead: “minimum-wage changes (or inaction) were partially a response to political pressures associated with changing labor market conditions and costs to employers of a minimum-wage increase” (p.311)
  – TINA premise

• Minimum wages and other non-market factors
  – Decline of unions
  – Deregulation

• Other theory and evidence
Relation to monopsony
Induced overeducation vs monopsony

• *Not* monopsony at the level of the individual firm
• Macro interactions
  – Increase in min wage produces downward shift in the “supply of high-skill workers”
  – ‘Aggregate monopsonistic’ effect
• Raises questions about educational strategies to fight inequality
5 MACRO IMPLICATIONS
Aggregate demand and bubbles

- Increasing inequality and aggregate demand
  - Public sector deficits
  - (Trade surplus)
  - Bubbles

- Any direct links to financial bubbles?
Portfolio composition
(age of household head 55-64; 2001 SCF)

Mean(median) portfolio shares

- **Net worth $10K-$100K**
  - Stocks 9.2 (0.0)
  - Bonds & cash 14.8 (2.0)
  - Owner occ housing 68.6 (85.1)

- **Net worth >$1M**
  - Stocks 33.9 (33.4)
  - Bonds & cash 18.4 (7.1)
  - Owner occ housing 17.7 (16.1)
Inequality and portfolio dynamics

- Increasing inequality
  - rising demand for stocks
  - capital gains
  - shifts in portfolio composition
  - start of a bubble
Model

- **Two financial assets**
  - Bank deposits with fixed interest rate
  - Equity with dividends and capital gains

- **Two types of households**
  - **Rich:**
    - high saving rate
    - both equity and deposits in portfolio
  - **Poor**
    - low saving rate
    - have only bank deposits
Firms
- No new issues of equity
- Constant profit share
- Constant retention rate

Output grows at constant rate
Endogenous changes in portfolio composition
- Share of equity responds gradually to changes in relative returns
Equations

- Consumption functions
  \[ C_P = aY_P + bW_P \]
  \[ C_R = \gamma aY_R + bW_R \]

- Portfolio composition
  \[ M_P = W_P \]
  \[ M_R = (1 - \alpha)W_R \]
  \[ \nu N_R = \alpha W_R \]
  \[ M = M_P + M_R \]
  \[ W = W_P + W_R = M + \nu N \]
• Budget constraints

\[ C_P + \dot{M}_P = Y_P \]
\[ C_R + \dot{M}_R + v\dot{N} = Y_R = (1 - s)xY \]

• Portfolio dynamics

\[ \dot{\alpha} = \mu(\alpha^*(r^e) - \alpha); \quad \alpha^* > 0, \mu > 0 \]
\[ \dot{r}^e = \lambda(r - r^e) \]
Implications of rise in equality

- 3D system in $\alpha, r^e, q_R$
  (share of equity in portfolio, expected return on equity, wealth-income ratio of rich households)

- Corridor stability for range of parameters
  - local stability
  - large shock $\rightarrow$ divergence

- Increase in inequality
  $\rightarrow$ drop in $q_R$
Simulation; $r^e, \alpha$ plane
Other mechanisms

• Policy induced
  – Monetary policy

• Veblen effects
  – Increasing inequality / stagnating or falling incomes at low end
  – Increasing indebtedness
  – Permissive finance and housing bubbles
6 INTERNATIONAL EVIDENCE
International differences

- Levels and changes in inequality
- Sources of changes in inequality
- Institutional factors

Gini coefficients of income inequality, mid-1980s and late 2000s
Trends in annual hours worked by bottom and top quintiles of earners, mid-1980s to mid-2000s
Percentage-point changes of the shares of capital income in total household income, mid-1980s to mid-2000s
Inequality of market income and disposable (net) income in the OECD area, working-age persons, late 2000s
Disincentive effects?

Table 4. Share of employed and unemployed workers (\%) who are in an unemployment trap ($\delta \geq 1$)

<table>
<thead>
<tr>
<th></th>
<th>1993</th>
<th></th>
<th>1996</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>All</td>
<td>Men</td>
</tr>
<tr>
<td>Employed</td>
<td>5.6</td>
<td>8.6</td>
<td>7.0</td>
<td>6.2</td>
</tr>
<tr>
<td>Unemployed</td>
<td>4.9</td>
<td>12.2</td>
<td>9.1</td>
<td>6.7</td>
</tr>
<tr>
<td>All</td>
<td>5.5</td>
<td>9.2</td>
<td>7.4</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Notes: Excludes self-employed workers, those assisting their wives, individuals in different leave schemes, and social welfare recipients who may be registered as unemployed.
The number of observations in 1993 and 1996 are 2718 and 2433, respectively.

Pedersen and Smith (2002), European Sociological Review
7 CONCLUSIONS
Explanations

- Invalid TINA argument for SBTC

- Marxian and institutionalist stories of increasing inequality

- Links between inequality and macro performance
Prospects

- Policy solutions depend on causes
  - Education as solution?
- False tradeoff
  - Inequality and full employment (US) vs equality and unemployment (Europe)?
- International evidence
  - Institutions matter
  - Redistribution works
- PBTC (and globalization) and political feasibility?
Equality of opportunity?

**Figure 3Q** Intergenerational mobility and income inequality in 22 countries

Note: The higher the Gini coefficient, the higher the inequality. The higher the intergenerational elasticity, the lower the extent of mobility. Equation for the trend line is $y = 1.1253x - 0.0202$ and the $R^2 = 0.5934$.

Source: Adapted from Corak (2012, Figure 2)
“Economic Mobility” (Sawhill & Morton, 2007)

Figure 1. Percentage of Citizens Agreeing with Belief that...

- "People get rewarded for intelligence and skill": 69% (United States), 39% (Other Countries)
- "People get rewarded for their efforts": 61% (United States), 36% (Other Countries)
- "Coming from a wealthy family is ‘essential’ or ‘very important’ to getting ahead": 19% (United States), 28% (Other Countries)
- "Income differences in [country] are too large": 62% (United States), 85% (Other Countries)
- "It is the responsibility of government to reduce differences in income": 33% (United States), 69% (Other Countries)

Range across 25 countries: 5%–69% for "People get rewarded for intelligence and skill," 5%–64% for "People get rewarded for their efforts," 10%–61% for "Coming from a wealthy family is ‘essential’ or ‘very important’ to getting ahead," 62%–08% for "Income differences in [country] are too large," and 33%–89% for "It is the responsibility of government to reduce differences in income."
Thanks!
Figure 3. The U.S. Has Less Relative Mobility than Many Industrialized Nations