Unsettled Issues in the Rise of American Inequality

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My interest in the rise of inequality

- Curiosity about how to resolve a puzzle
- Start from the definition that
    - Labor's share of national income *(S)* equals the real wage divided by productivity

$$S \ = \ WN/PY \ = \ (W/P)/(Y/N)$$

- Add the fact that labor's share has not changed appreciably in the last 50 years
- That implies some definition of real wage growth must equal long-run productivity growth

The Mystery of the Mean vs. the Median

- Start with the fact that productivity has increased by 75 percent since 1972 (total economy)
- Thus average real wage growth must have been roughly the same
- Yet we keep hearing that median real wage growth was virtually *zero!* And median household income has done little better than that.
- This median vs. mean difference is important to the recommendations of the Social Security TPAM

How to Resolve the Puzzle

- The IRS publishes income tax data that are heavily oversampled at the top

- This allows us to compare the median and mean directly

- How much have incomes increased at the 20, 50, 90, 95, 99, 99.9, and 99.99 percentile?

- 5 million data observations, and it took my co-author about a week to get the answer

The New Elements in Our Data Analysis and Interpretation

- This presentation is a sequel to our 2005 *BPEA* paper, where we were the first to
  - Link the National Accounts with the IRS data
  - Unravel the puzzles of stable labor's share, rising mean wage income, and stagnant *median wage income.*
- Our explanation moves beyond the literature by
  - Distinguishing between causes at the bottom (0-90) and at the top (90-99.99)
  - At the top, trying to sort out explanations involving SBTC, Superstars, and CEO pay
 - Trying to link US explanations to differences between the US and Europe/Japan

Our Headline Result in 2005

- *Over the period 1966-2001 only the top 10 percent of the income distribution had real compensation growth equal to or above the rate of economy-wide productivity growth*

- Today's presentation
  - Reviews our basic 2005 results
  - Provides a more complete review of explanations of increased US inequality at the bottom (0-90) and at the top (90-99.99)
  - Adds a preliminary review of international data

Two Concepts of Labor's Share

- Two Concepts
  - Straightforward share of NIPA employee compensation
  - Add in labor's part of business proprietors' income
- Both concepts are expressed as a percentage not of GDP but of domestic income at factor cost (excludes depreciation and indirect bus taxes)
- What to notice
  - Up-down cycle 1997-2006 repeats 1987-97
  - Share was higher in 70s
  - Comprehensive concept no change since 50's

What has Happened to Labor's Share?
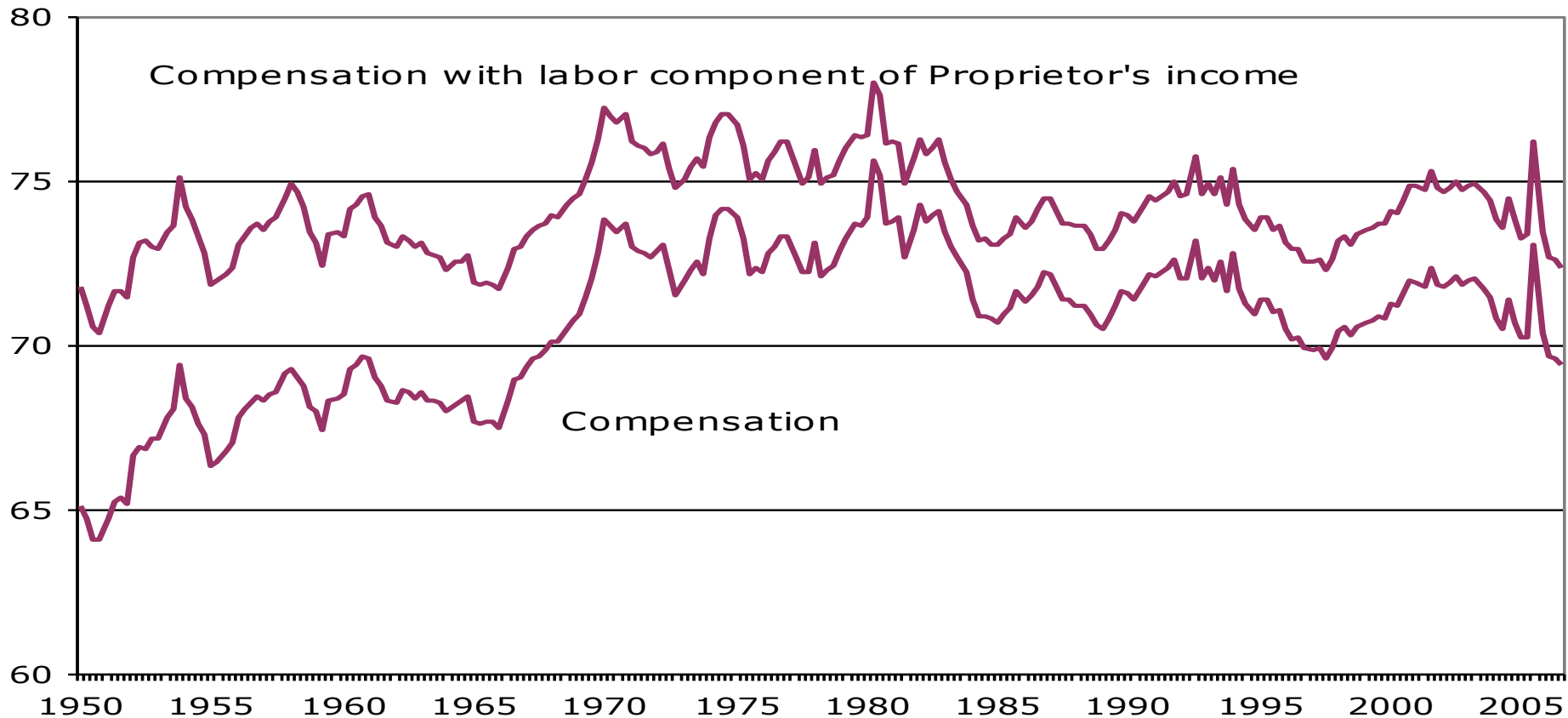
Lack of Connection between Labor's Share and Inequality

- Incomes were much more equal in 1950s but labor's share was the same (or lower for the narrow measure)

- Much of the rise in inequality > 90th percentile occurs in labor income, not capital income

- The main story is increased skewness within labor income, not a shift from labor to capital income

Our Micro Research: Linking the IRS and NIPA Data

- To whom do the benefits of productivity growth accrue?

- Our contribution is a measurement of income inequality with a direct comparison to productivity growth

- Thus we focus on which percentiles of the income distribution received real income gains

- We started noting that medians grew much slower than averages. Here we uncover the nuts and bolts of why this happened

Sources of Income Inequality: IRS Microfile Data

- Cross-sectional data for 1966-2001
  - Heavily oversamples rich
  - Allows analysis of top .1% or .01%
  - 100-200,000 returns per year
  - 3,000+ returns in top 0.01 percentile out of 13,000 total filers
- This study is based on roughly 5 million data points, a few more than the typical time series quarterly postwar data analysis!
- The IRS micro data file provides every type of income on tax returns – wages & salaries, rent, interest, dividends, business income, pensions

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Advantages of IRS Data over CE/CPS Data Used by Others

- Other papers based on CE/CPS data understate increase in inequality
  - We find half of increase in inequality represented by 90/10 ratio, the other half is within 90-99.99
- CE/CPS data are top-coded, e.g., $35,000+ in 1972-73
- Recall bias may vary with income
- IRS data are linked to actual records, W-2s and 1099's
- What do we add?
  - Adjusting for non-filers
  - Eliminating negative nonlabor income
  - Adjusting IRS income for fringe benefits and changing hours

# Increased Skewness Above 90 is Missed by CPS Studies
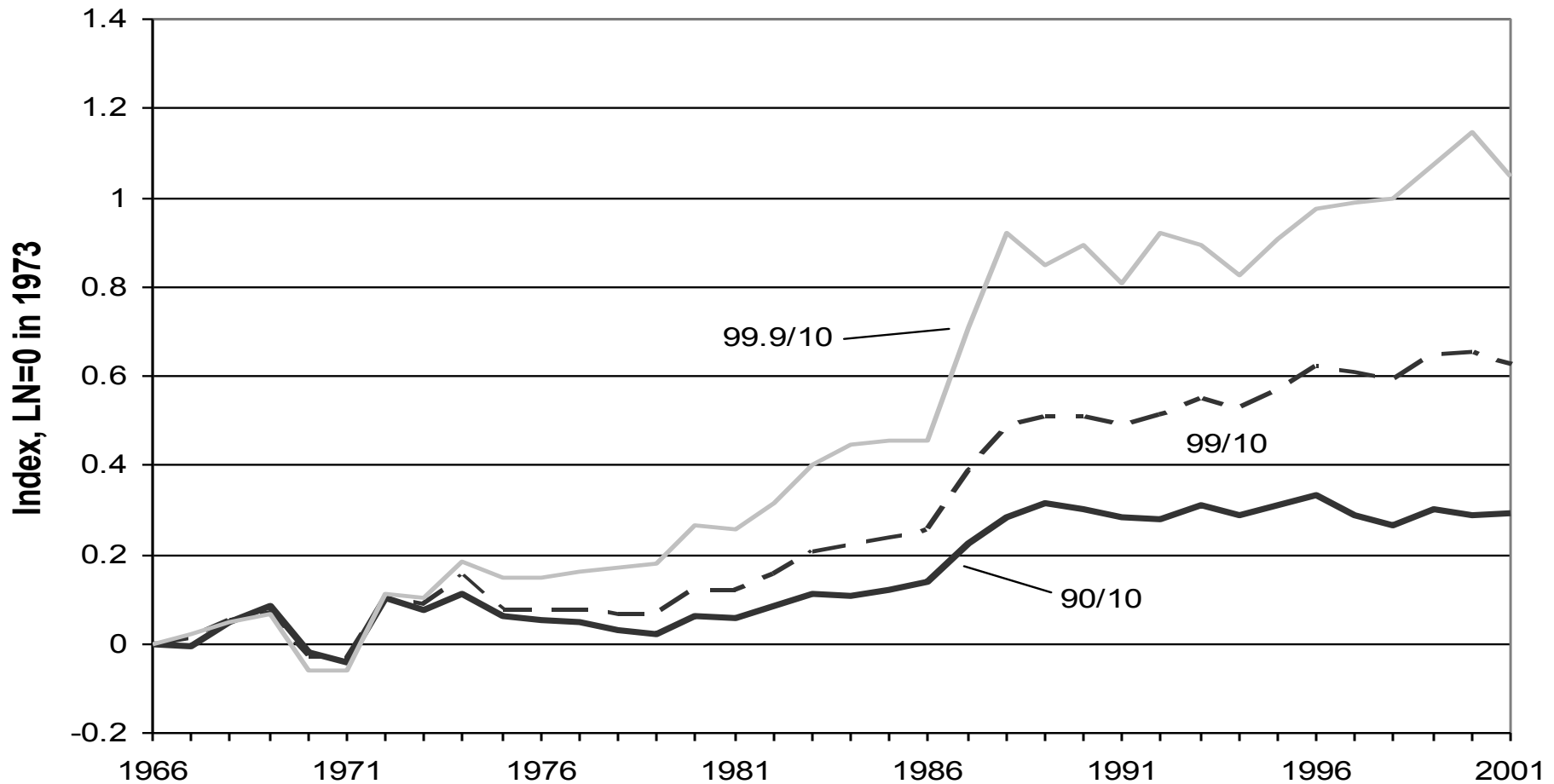
	Adjusted Percentiles							Percent Wage Share of Compensation
Year	**20**	**50**	**80**	**90**	**95**	**99**	**99.9**	
1966	7,242	23,667	42,127	52,683	63,367	99,872	220,653	90.5
1972	8,554	27,059	49,960	63,817	77,094	120,862	270,320	88.1
1979	8,916	26,402	53,717	69,531	84,790	137,918	342,009	83.7
1987	8,353	26,562	57,064	76,457	96,591	169,973	517,644	82.6
1997	8,496	26,436	58,549	82,285	108,012	215,039	692,955	83.1
2001	9,335	28,559	63,715	90,473	120,630	239,982	806,157	83.2
Percent Change	28.9	20.7	51.2	71.7	90.4	140.3	265.4	
Average Annual Growth Rate	0.73	0.54	1.18	1.55	1.84	2.50	3.70	
Hours Adjusted Growth	0.95	0.76	1.40	1.77	2.06	2.72	3.92	

Gap Between Productivity and Hours-Adjusted Growth

Years	**20**	**50**	**80**	**90**	**95**	**99**	**99.9**
'66-'72	1.89	1.35	1.96	2.31	2.38	2.29	2.50
'72-'79	-0.37	-1.32	0.07	0.26	0.39	0.92	2.39
'79-'87	-2.45	-1.56	-0.88	-0.45	0.00	0.98	3.55
'87-'97	-1.39	-1.61	-1.30	-0.83	-0.44	0.79	1.36
'97-'01	0.75	0.33	0.51	0.77	1.16	1.14	2.18
Average	-0.62	-0.81	-0.17	0.20	0.49	1.15	2.35

Labor vs. Nonlabor vs. Total Income

Figure 12.
Share of Top 10 Percent in Increase of Real Income, $2000, Selected Intervals, 1966-2001
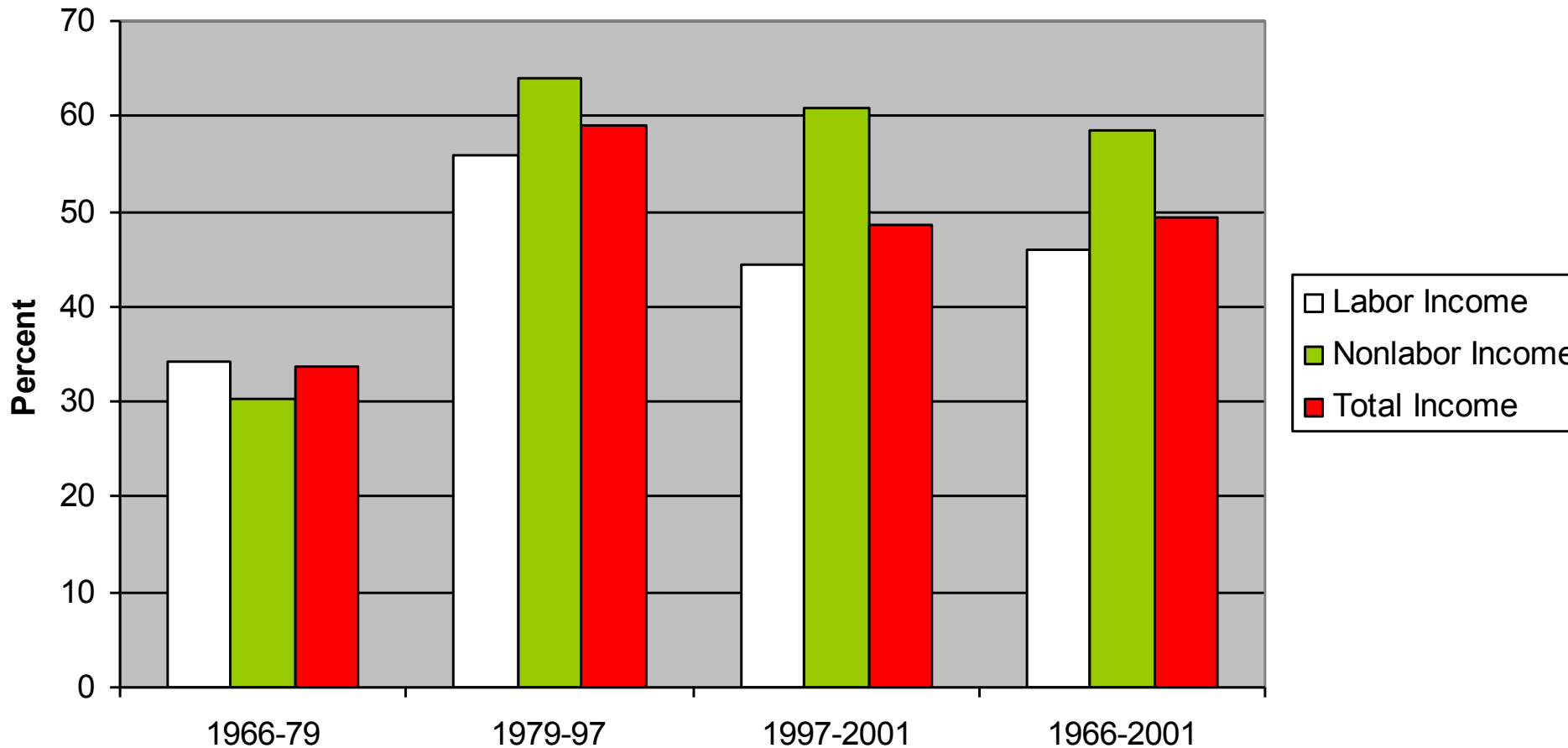
## Causes of Increased Inequality: Current Debate Based on CPS

- Common Focus on Skill-Biased Technical Change (SBTC) to Explain 90/50 or 90/10

- Since supply of college graduates has increased, SBTC says that demand must have increased more than supply

- Side comment – American educational achievement has *stopped increasing.*

But That Is Coming to an End

- Thursday *Wall Street Journal*, p. A2
- Steady growth in educational attainment at age 30 by year of birth (slowdown esp. for males)
  - 1900 8.5 years
  - 1950 13.2
  - 1975 13.9
- Implies growth accounting contribution of "labor quality" falling from 0.25 to zero!
- Bad news for US compared to Europe

Income Inequality below 90th Percentile

- Many articles and hypotheses focus on the timing of changes in the 90-50 and 50-10 ratios

- Key fact: Big decline in real minimum wage 1981-86

- We had previously looked only at data on men and women combined

- But the time path for men and women is quite different, and here we present ratios from the latest CPS data (EPI web site)

CPS Ratios for Men Only

90-10

90-50

50-10
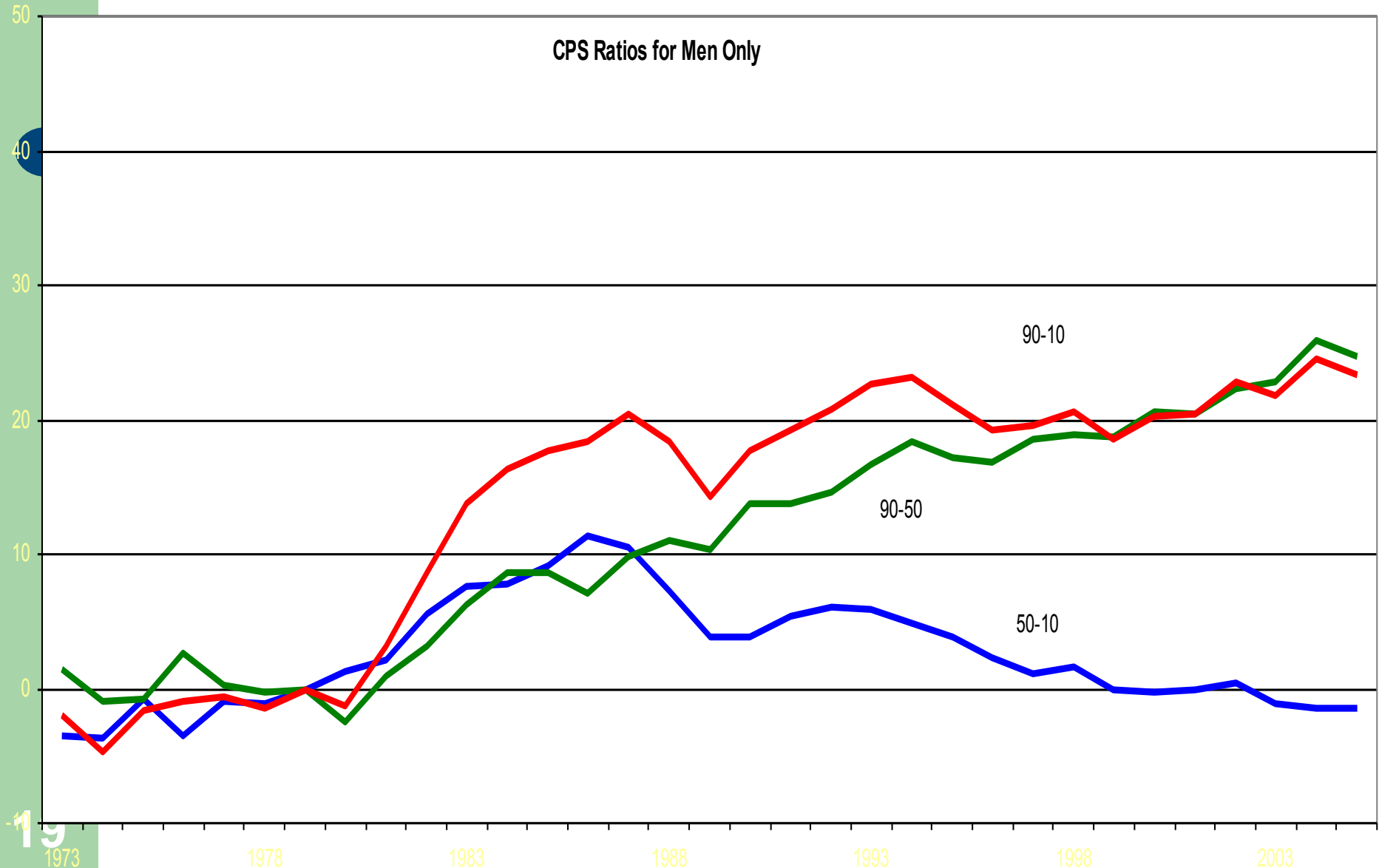
Ratios 1973-2005 for Women

CPS Ratios for Women Only
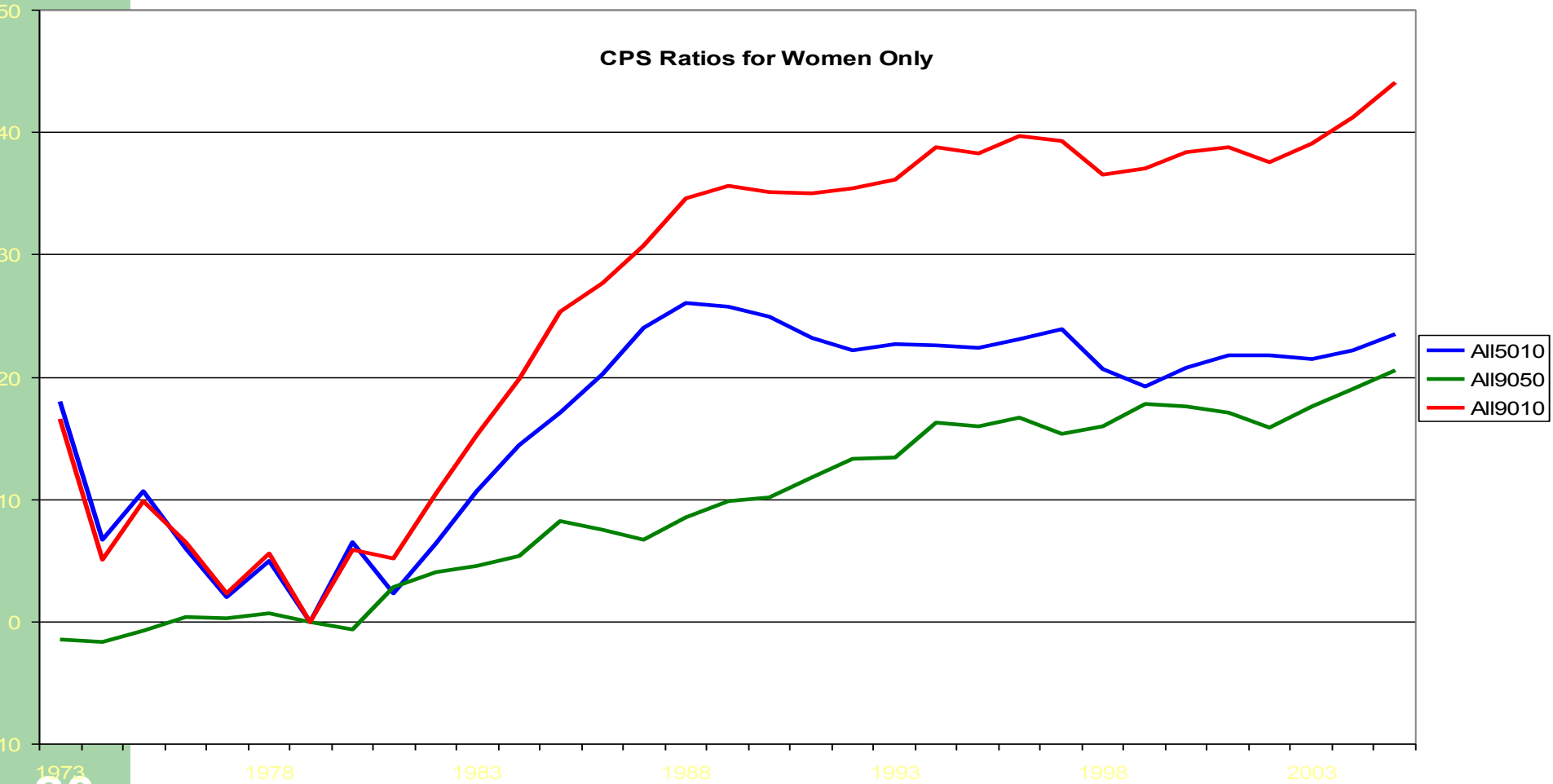
# Organizing Principle for 90-10 Ratio: Reversal of the Goldin-Margo "Great Compression"

- Goldin-Margo comment on the "remarkable similarity" between compression of the distribution in the 1940s and its widening in the 1970s.

- Elements of the great compression of the income distribution in 1940-70: rise of unions, disappearance of imports and immigration

- Reversal: decline of unions, rise of imports and immigration

- Extra elements: equalizing influence of high school educ 1910-40 and min wage
  - Recall those educational attainment numbers at age 30, 8.5 in 1930 vs. 13.2 in 1980.

Skill-biased Technical Change

- The gradual increase in 90-50 for both men and women lends plausibility to this hypothesis
- Our paper disputes some anti-SBTC arguments that are based on timing by distinguishing 90-50 vs. 50-10
- Reason for skepticism: occupational group data show low wage increases for engineers and computer experts, fast for "managers"
- We endorse Autor-Katz-Kearney in broadening the concept of SBTC to encompass five groups, "nonroutine interactive" down to "routine manual"

The Next Slides are from D. Autor: Changes in Real Wages by Percentile → 'Polarization'

Changes in Real Male & Female Log Hourly Wages by Percentile: CPS MORG
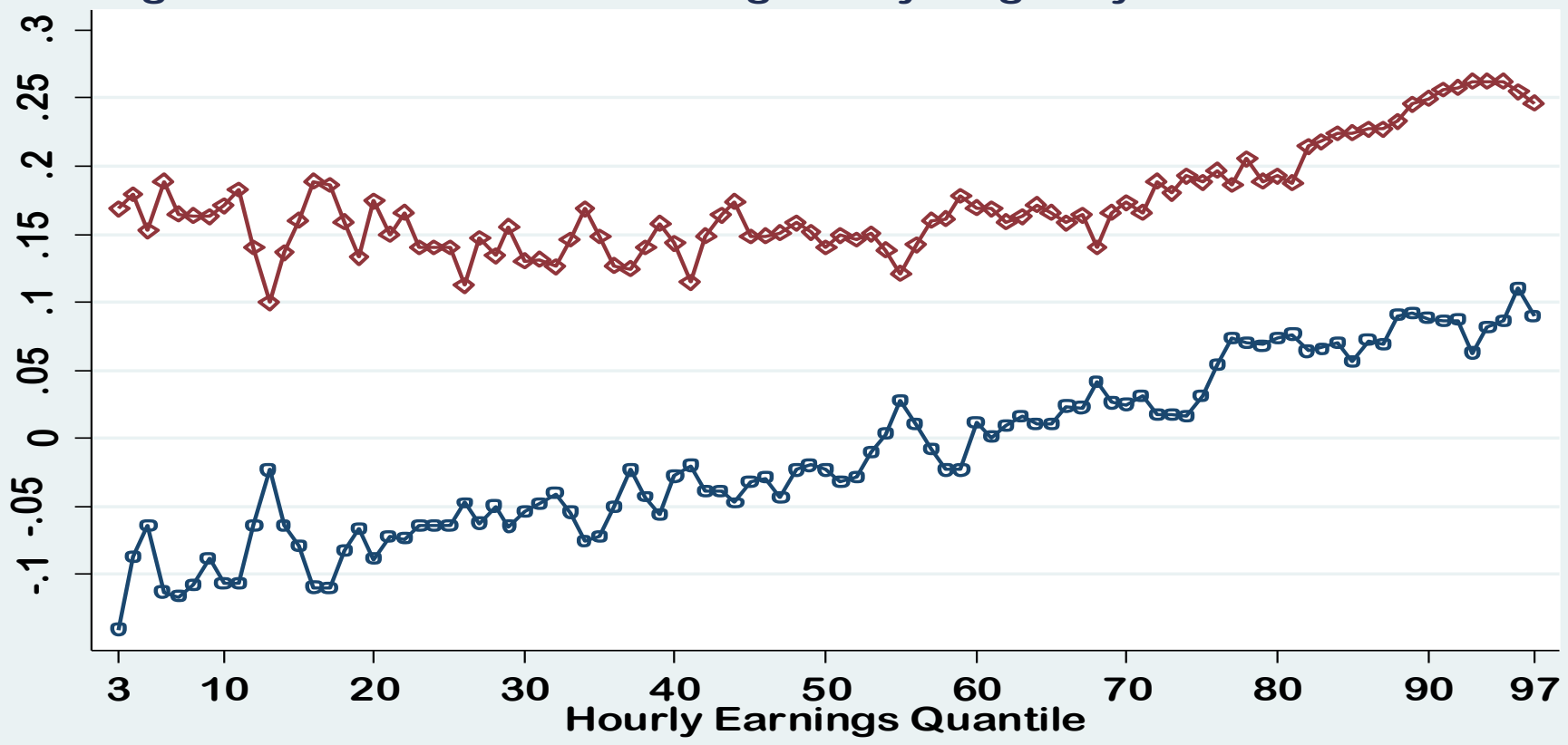
Exploring Role of Supply and Demand in Wage Polarization

1. **Present straightforward evidence that demand forces appear central to:**

   - Monotone rise of inequality in the 1980s

   - Twisting/polarization in the 1990s

- **Consider how technical change contributes to understanding of these trends (cf. Autor, Levy, Murnane 2003)**

Changes in Occupation Employment Shares
Occupations Ranked by Average Years Schooling 1980

Figure 4. Smoothed Changes in Employment by Occupation 1980-2000
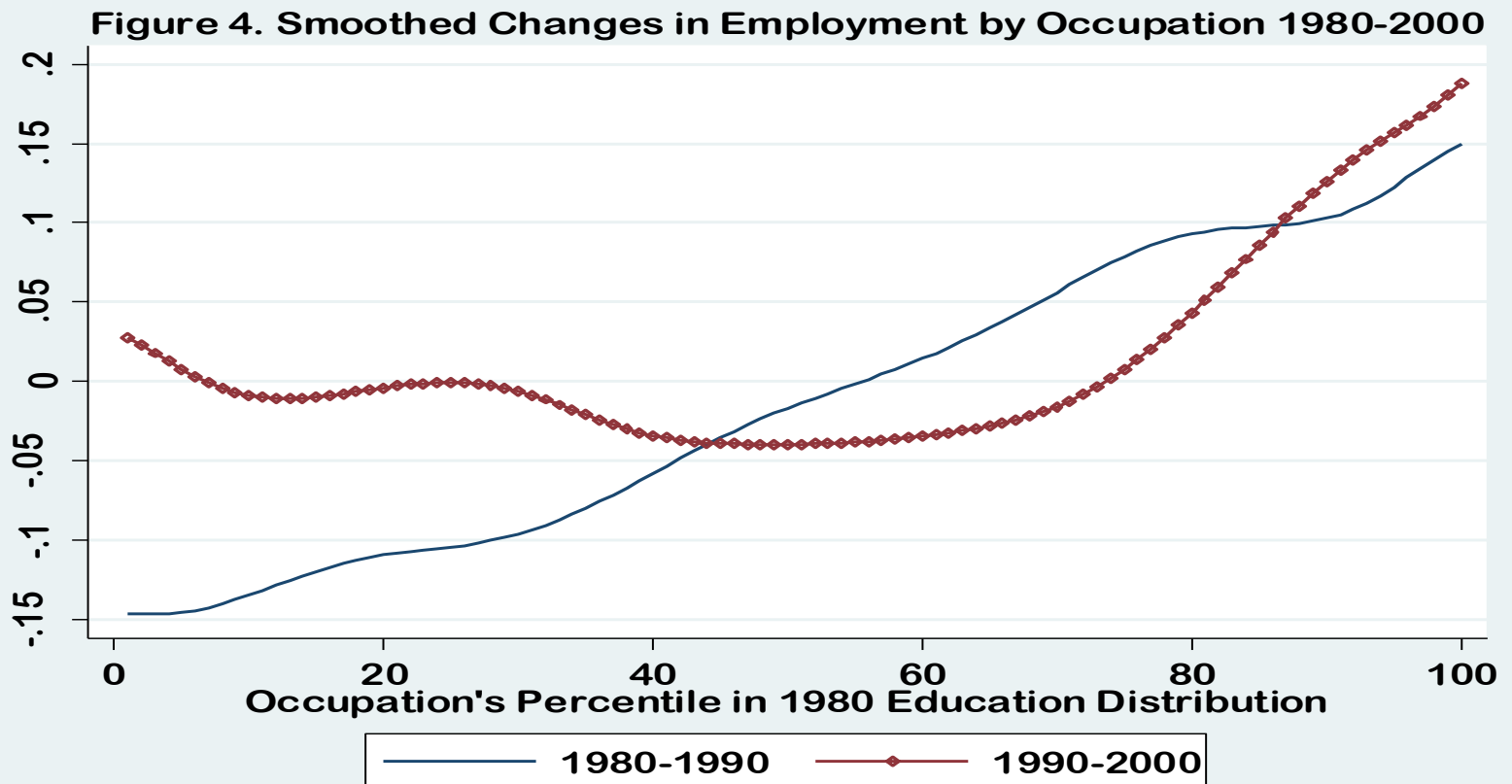
A Second Approach: Job Task Content

Autor, Levy, Murnane 2003: Conceptualize work as being made up of sets of 'tasks.'

Examine how input of job tasks has changed over multiple decades.

- Link Dictionary of Occupational Titles to occupations in 1973/79.

- Use changes in occupation distribution over 1959 – 2002 to measure changes in job task content

Their three-way division

- High: non-routine cognitive
  - CEOs, lawyers, investment bankers, professors, doctors
  - High complementary with computers

- Middle: Routine, repetitive
  - Bookkeepers, accountants
  - High substitution with computers, outsourcing

- Low: Manual but interactive
  - Truck drivers, nurses, waiters
  - Little compl or subst with computers

Representative Evidence: Trends in Job Task Content 1960 – 2002
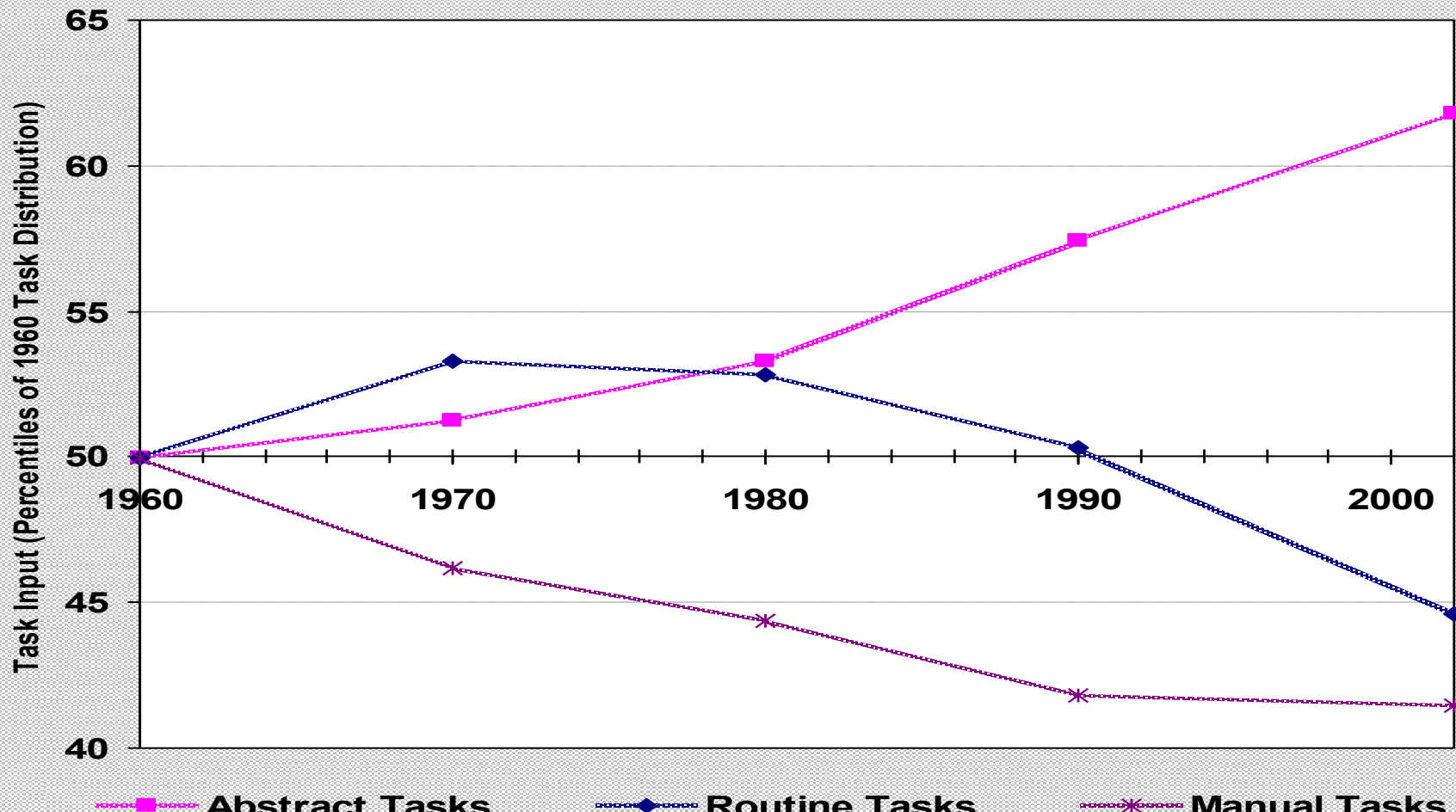
Summary

1. The demand for skills may be polarizing:
   a. **A growth in demand for analytical and managerial work**
   b. **A growth in demand for service workers**
   c. **Reduction in demand for 'middle-skilled' white collar jobs**
   → *Many high and many low-skilled jobs*
   → *Low-skilled jobs subject to competition from immigrants*

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Further Summary on Polarization

1. 'Offshoring' strongly complements technical change: **Middle-skill 'routine' jobs are easiest to offshore.**

   - **High skill analytical/creative jobs appear to require 'being there.'**
   - **Many low-skill jobs are also intrinsically 'in-person.'**

2. Low-skilled service jobs – Many to come!

   - **What will they pay and who will perform them?**

→ *Rising demand for both "Lovely and Lousy" jobs* (*Goos and Manning, 2006*)

Increased Inequality at the Top, 99.99 vs. 90.0 percentile

Previous hypotheses (Kaplan-Rauh):

SBTC (Katz and Murphy)

increasing returns to generalists (A-K-K)

stealing theories (Bebchuk et al)

social norms (Piketty-Saez)

greater scale (Gabaix and Landier)

Superstars (Rosen)

In this context, our 2005 paper introduced the Superstar vs. CEO distinction

- Our critics of 2005 said "superstars account for too little" but we explicitly included

    – Entertainment stars

    – Sports stars

    – Lawyers

    – By implication textbook authors, painters, musicians

Inequality at the Top:
The Superstar Component

- Sherwin Rosen on the "Economics of Superstars"
  - Steep earnings-talent gradient at the top
  - "Hearing a succession of mediocre singers does not add up to a single outstanding performance"
- Earnings premium of superstars depends on the size of the audience
  - Magnification through technical change: phonograph, radio, television, cable television, CDs
- Superstars include top-paid lawyers, doctors, even economists who refuse to leave Harvard when offered megabucks to go to Columbia
- A few economists make millions by writing textbooks

The CEO Phenomenon

- This is where the real money is in the 99.99 percentile
- 1989-2000 CEO compensation increased 342 percent compared to 5.8 percent for median hourly wage
  - But this hasn't happened in Europe (UK and Canada are in between)

Substantive Hypotheses about CEOs

- William Shakespeare *(Hamlet,* I, iv)*:*
  - "Something is Rotten in the State of Denmark"
- Why distinguish CEOs from Superstars?
  - Because they can choose their own salaries
  - Because they bribe directors compensation committees with salaries and perks
 - Because they are involved in criminal activity on a daily basis

Bebchuk-Grinstein Study (2005)

- 1500 Firms
  - Average $14.3 million for CEO
  - Average $6.4 million for top five officers (exactly the mean income of 99.99)
  - Total of $48 billion is more than half of income in 99.99
- Cause? Compensation increased 76% more than can be explained by firm size, rate of return, or growth of rate of return
- Flaw in their study? If stock price/earnings ratio increases, then CEO pay could be explained by stock prices not rate of return

The International Comparison Puzzle

- Data based on the share of the top 1% or 0.1% uniformly show that income inequality in the US grew the most after 1970 (US vs. Canada-UK-France-Japan)

- Data on CEO pay show much higher ratios of CEO/avg worker in US than anywhere else

- Next slide shows ratios for the top 0.1% from 1920 to 1998 (Piketty-Saez and co-authors)

- This includes labor and capital income (dividends, business proprietors) but not capital gains

Income Share of Top 0.1 Percent, Five Countries, 1920-1998
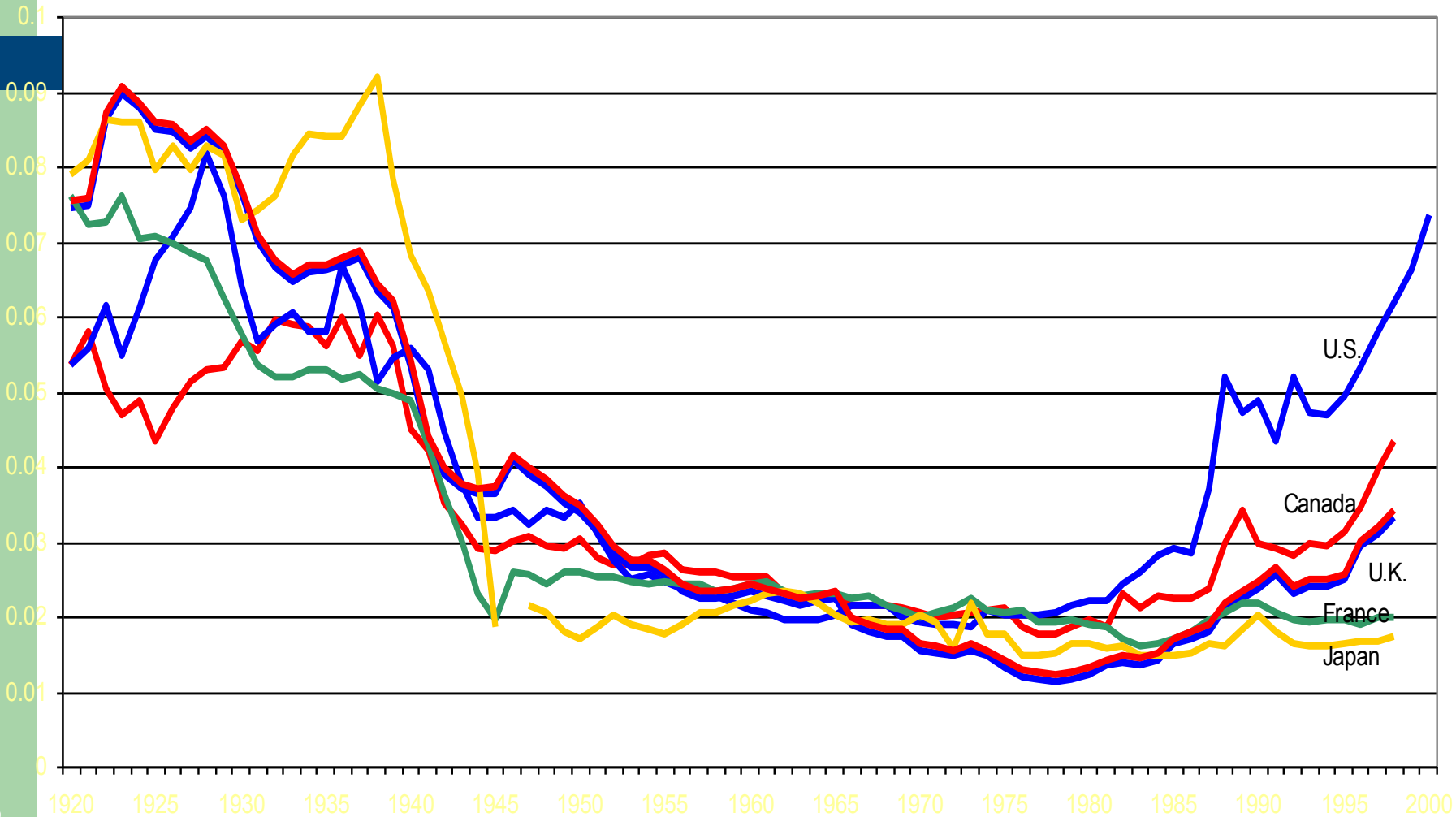
Explanations of Piketty-Saez

- Big decline from 1920s to 1950s was due to destruction of capital income
  - Losses in Depression and WWII
  - Destruction, bankruptcies, inflation
  - Progressive taxation to finance the war
- Switzerland makes the case
  - No wars, low taxes
- Post-1970 in English-speaking countries the "working rich" have replaced the "rentiers"

How to Explain US-UK vs. France and Japan?

- Simple story of increased demand for "executive skills" won't work, because why not in all countries?

- Two other alternatives:
  - "Social norms" preserving equality in Japan and France prevent competition-driven increase in executive pay (loss of efficiency)
  - US execs have learned to steal from shareholders (no gain of efficiency)

- Revival of "norms" the big theme of Akerlof's 2007 AEA Presidential Address

Conclusions and Further Research

- Not just income and wealth are concentrated, but real income *growth*

- Not just true of capital income, also of wage and salary income

- 80-90% of the wage distribution does not enjoy wage gains equal to productivity growth

- Lots of research left to do, starting with explanation of cross-country differences