Do the Productivity Slowdown and the Inequality Increase Have a Common Cause?

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Outline
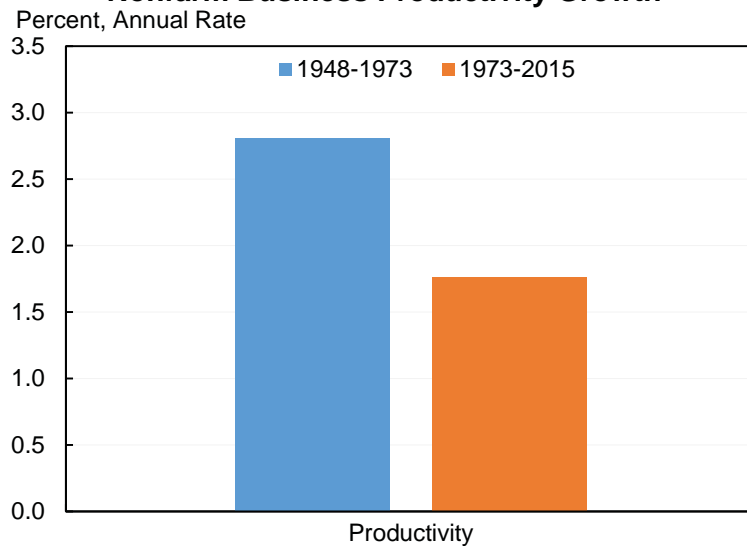
1. The Question

2. Key Facts about Productivity and Inequality to Explain

3. Evidence for Reduced Dynamism

4. Evidence for Reduced Competition

5. Possible Explanations

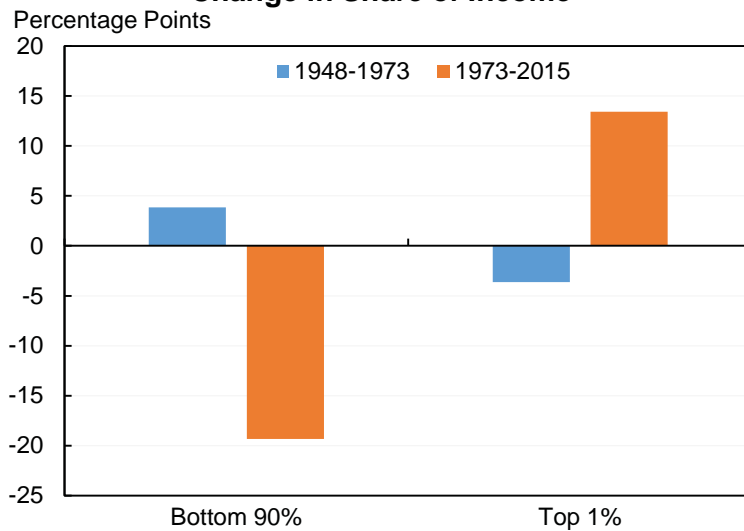# Productivity slowdown has coincided with increased inequality

Nonfarm Business Productivity Growth
Percent, Annual Rate

Legend: 1948-1973, 1973-2015

(Bar chart: Productivity — 1948-1973 ≈ 2.8, 1973-2015 ≈ 1.75)

Change in Share of Income
Percentage Points

Legend: 1948-1973, 1973-2015

(Bar chart: Bottom 90% — 1948-1973 ≈ 4, 1973-2015 ≈ -19; Top 1% — 1948-1973 ≈ -3.5, 1973-2015 ≈ 13.5)

Source: Bureau of Labor Statistics; World Wealth and Income Database; author's calculations.

How might productivity and inequality be related?

<u>Traditional Explanation</u>: Skill-biased technological change leads to inequality (e.g., Goldin and Katz 2010). This is in some tension with *slowing* productivity growth and the race with education explains less recently.

<u>Inequality Harms Growth</u>: Some macro evidence (e.g., Ostry et al 2014) and micro channels (e.g., Bell et al 2016), but questions about the validity of the macro results and also the magnitudes.

<u>Our argument: Common Cause</u>: Reduced dynamism and reduced competition can cause lower productivity & inequality.

Recent research on these issues

Firm-level inequality is important (Barth et al 2014 and Song et al 2016)

Industries with more concentration invest less (Gutiérrez and Philippon 2016 and Goldman Sachs 2016)

At a macro level, the rise of concentration helps explain the decline of the labor share (Barkai 2016)

Industries with more concentration have seen larger declines in the labor share of income—but they explain this as sorting (Autor et al. 2017)

## Facts a consistent story should explain

- Productivity growth has slowed
  - But some firms are doing considerably better than others.
  - Moreover, diffusion to lower performing firms is down.

- Inequality has increased
  - Largely an increase in inequality of labor income. Smaller contribution from increased inequality of capital income and labor-capital share.
  - Within labor income, largely between firms not within firms.

More firms are earning super-normal returns

Distribution of Annual Returns on Equity Across S&P 500

Count of Firms with Given Return on Equity

1996

2014

Annual Return on Equity (less Modal Return)
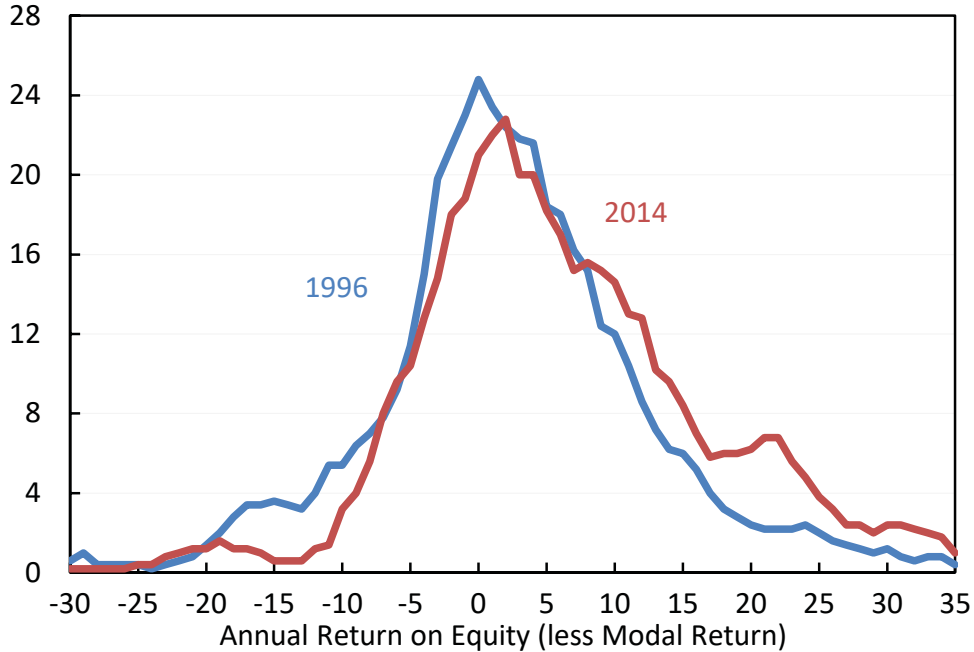
Note: The annual return to common equity is displayed for the stated year (i.e. 1996 or 2014) for all members of the S&P 500 as of the last week of May the following year (i.e. 1993 or 2015). The distribution of returns covers all members of the S&P 500 in the year indicated and buckets firms by single percentage-point intervals, smoothed by averaging over 20 five percentage-point intervals. The modal return in a given year was subtracted from each firm's return such that both distributions are centered approximately at zero. The tail ends of the distribution (above or below a 60 percent or 20 percent return on equity, respectively) were trimmed for optical clarity.
Source: Bloomberg Professional Service; CEA calculations.

Dramatic returns on invested capital potentially reflect economic rents

Return on Invested Capital Excluding Goodwill, U.S. Publicly-Traded Nonfinancial Firms

Percent

90 Percentile
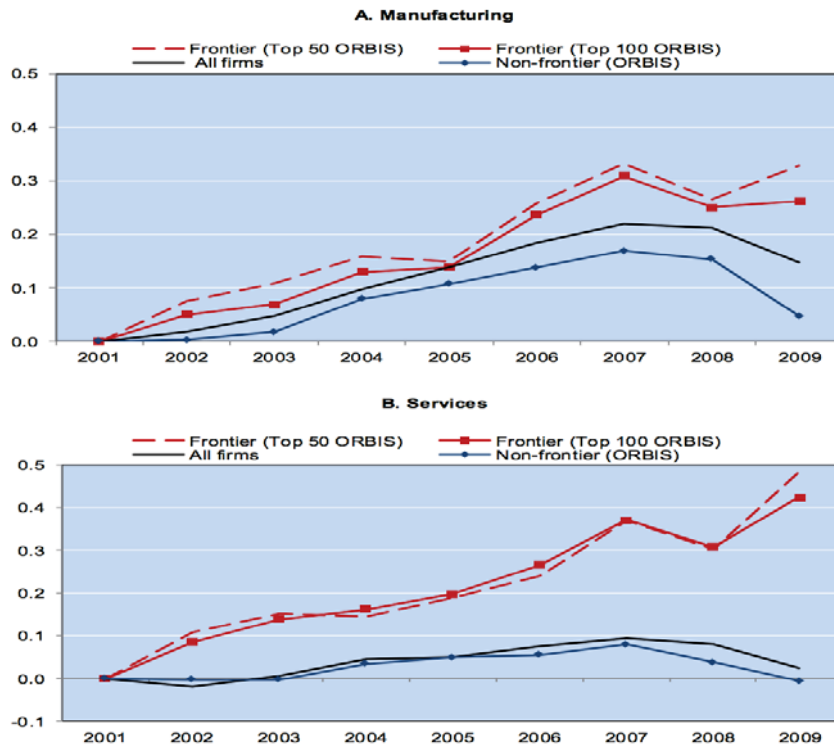
2014

75 Percentile

Median

25 Percentile
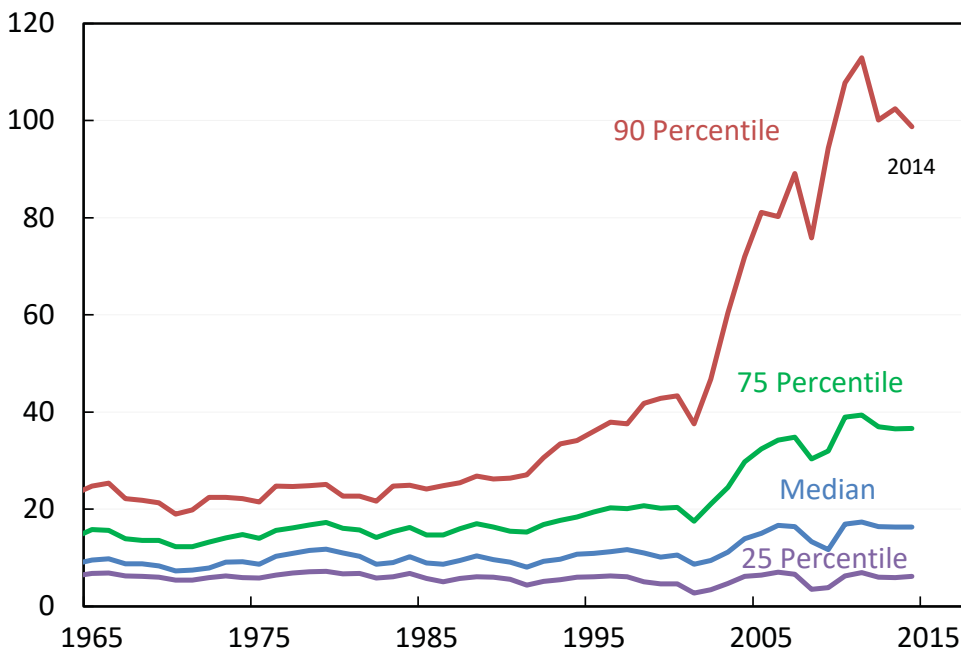
Note: The return on invested capital definition is based on Koller et al (2015), and the data presented here are updated and augmented versions of the figures presented in Chapter 6 of that volume. The McKinsey data includes McKinsey analysis of Standard & Poor's data and exclude financial firms from the analysis because of the practical complexities of computing returns on invested capital for such firms. For further discussion of that point, see Koller et al. (2015).
Source: Koller et al. (2015); McKinsey & Company.

# The OECD has shown that frontier firms have pulled away from other firms

Percentage difference in labour productivity levels from their 2001 values (index, 2001=0)

A. Manufacturing

Frontier (Top 50 ORBIS) — Frontier (Top 100 ORBIS) — All firms — Non-frontier (ORBIS)

B. Services

Frontier (Top 50 ORBIS) — Frontier (Top 100 ORBIS) — All firms — Non-frontier (ORBIS)

Top 1% are accruing larger share of income

Share of Total, Labor, Capital Income Accruing to Top 1%

Index, 1970=100

Share of Labor Income — 2012

Share of Total Income

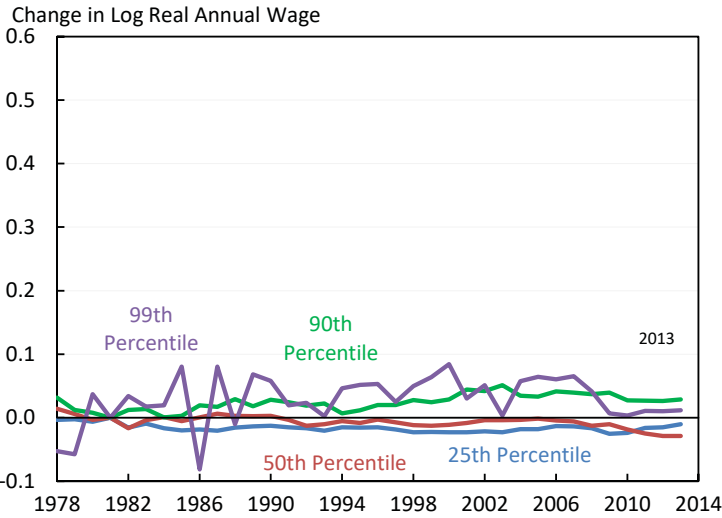Share of Capital Income — 2012

2014
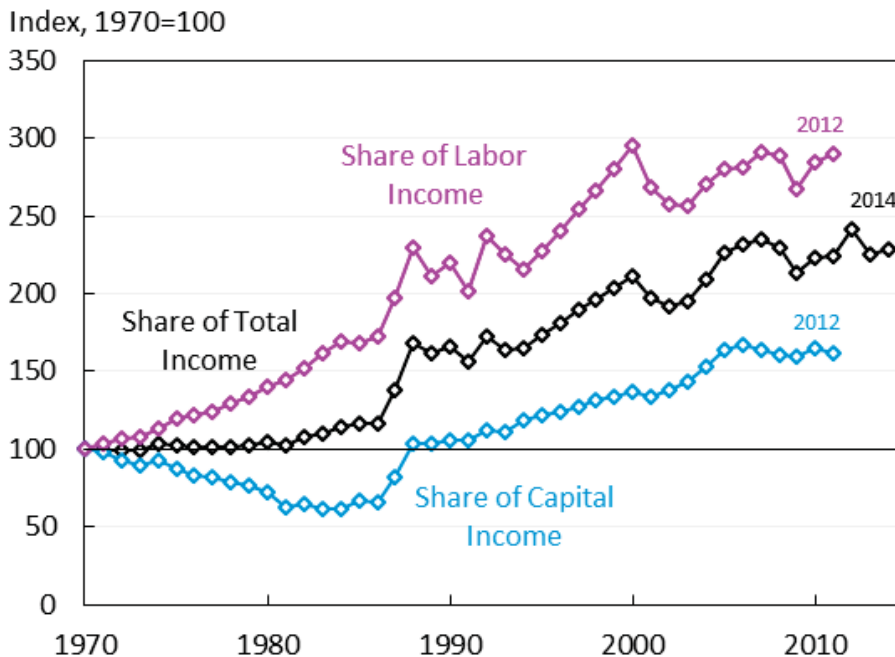
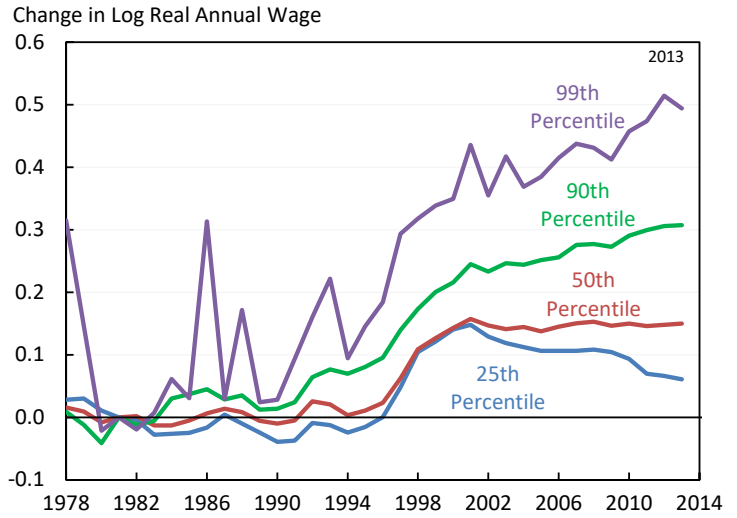Source: World Wealth and Income Database; Saez and Zucman (2016); CEA calculations.

Increase in wage inequality is between firms, not within firms

Within Firms: Change in Wage Structure Since 1981

Change in Log Real Annual Wage

99th Percentile
90th Percentile
50th Percentile
25th Percentile
2013

Between Firms: Change in Wage Structure Since 1981

Change in Log Real Annual Wage

2013
99th Percentile
90th Percentile
50th Percentile
25th Percentile

Note: Only firms and individuals in firms with at least 20 employees are included. Only full-time individuals aged 20 to 60 are included in all statistics, where full-time is defined as earning the equivalent of minimum wage for 40 hours per week in 13 weeks. Individuals and firms in public administration or educational services are not included. Firm statistics are based on the average of mean log earnings at the firms for individuals in that percentile of earnings in each year. Data on individuals/their firms are based on individual log earnings minus firm mean log earnings for individuals in that percentile of earnings in each year. All values are adjusted for inflation using the PCE price index.
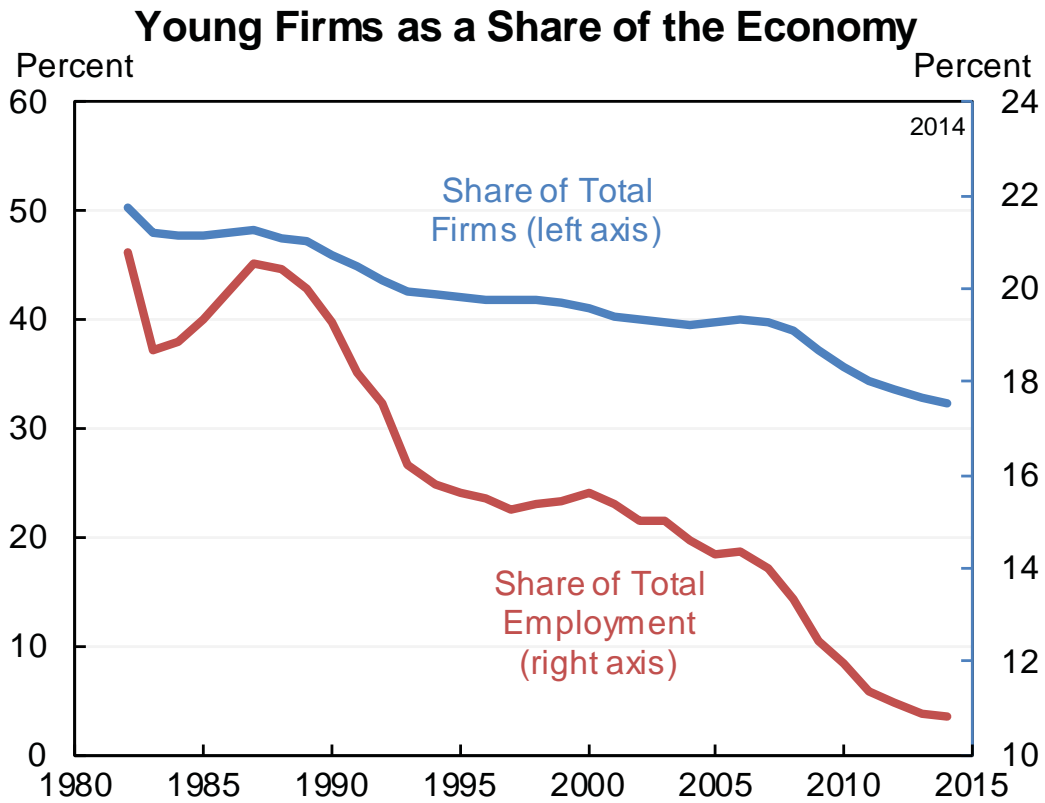Source: Song et al. (2016).

Reduced entry of firms

Firm Dynamism, 1978-2014

Percent

2014

Firm Entry Rate

Firm Exit Rate
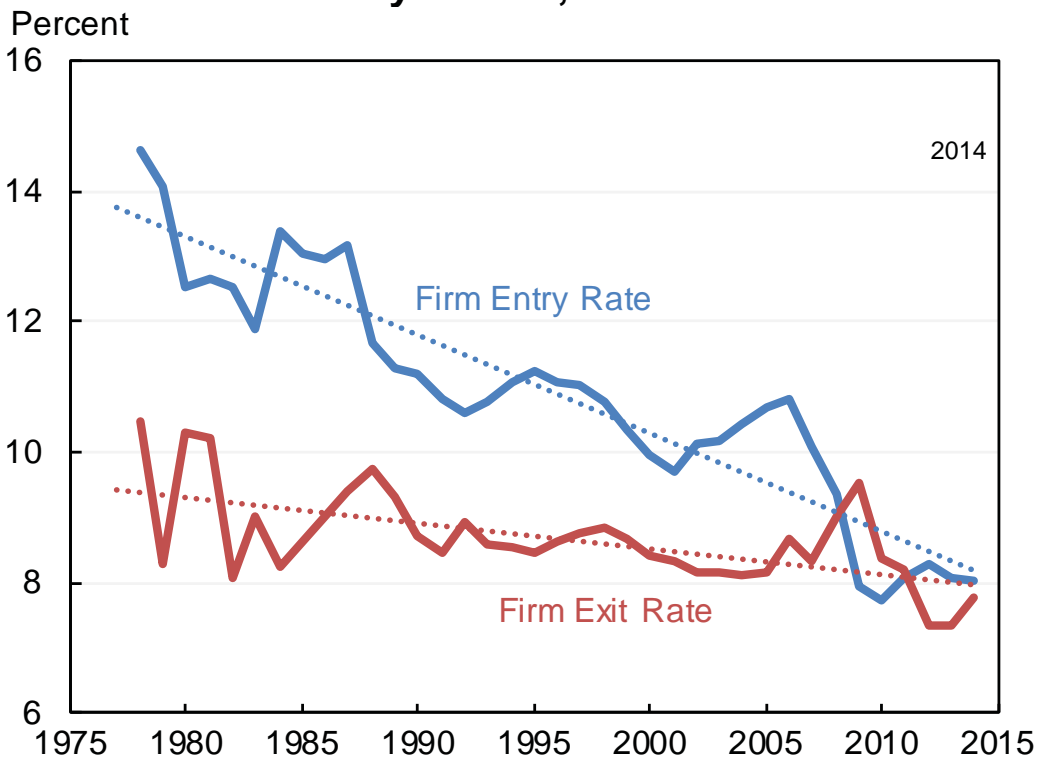
Source: Census Bureau, Business Dynamics Statistics; CEA calculations.

Younger firms are an increasingly small share

Young Firms as a Share of the Economy

Percent   Percent

2014

Share of Total Firms (left axis)

Share of Total Employment (right axis)

Note: "Young firms" are five years old or less.
Source: Census Bureau, Business Dynamics Statistics; CEA calculations.
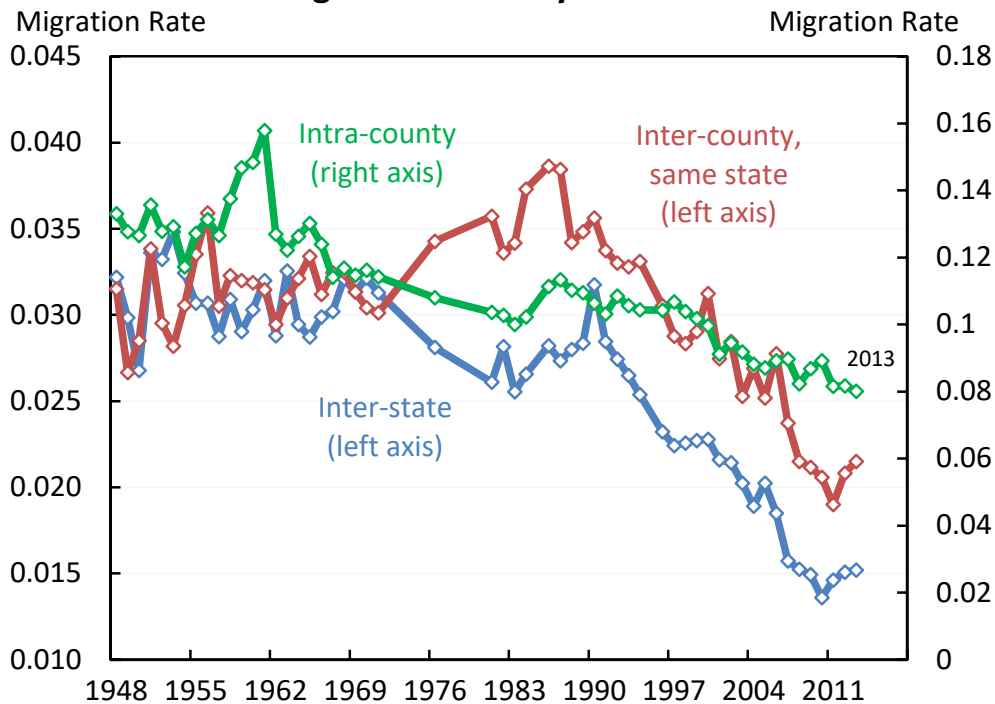
Declining labor market fluidity

Labor Market Dynamism, 1977-2014

Percent

2014

Job Creation Rate

Job Destruction Rate
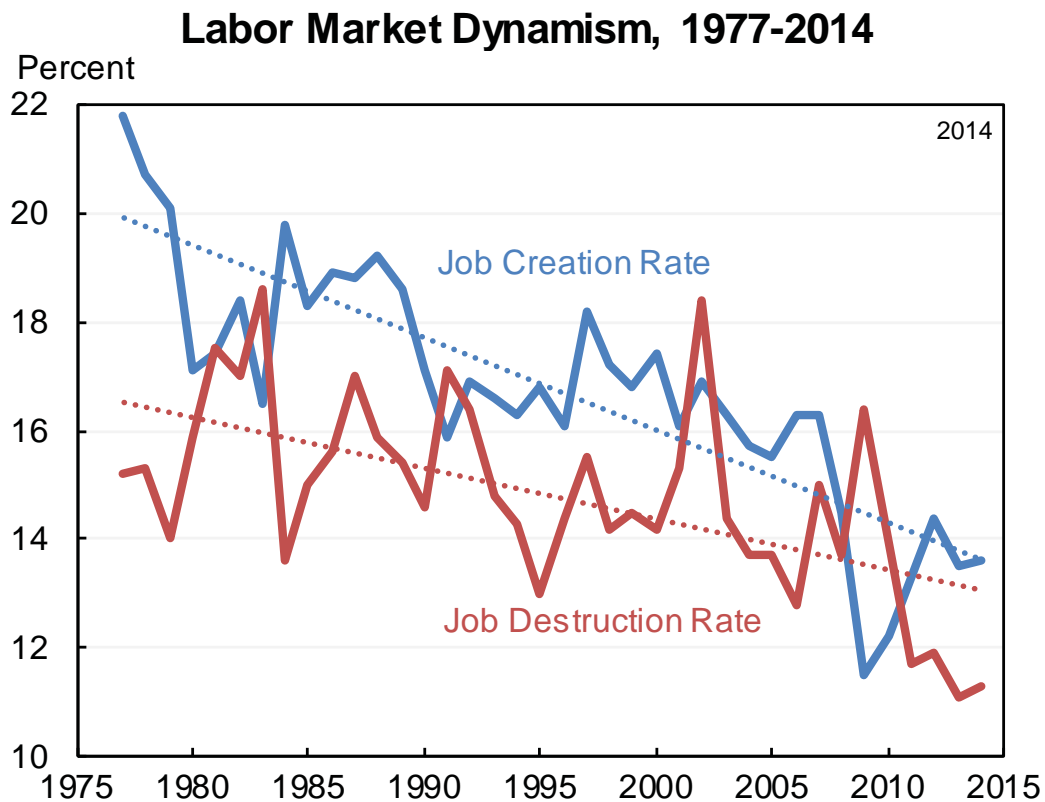
Source: Census Bureau, Business Dynamics Statistics; CEA calculations.

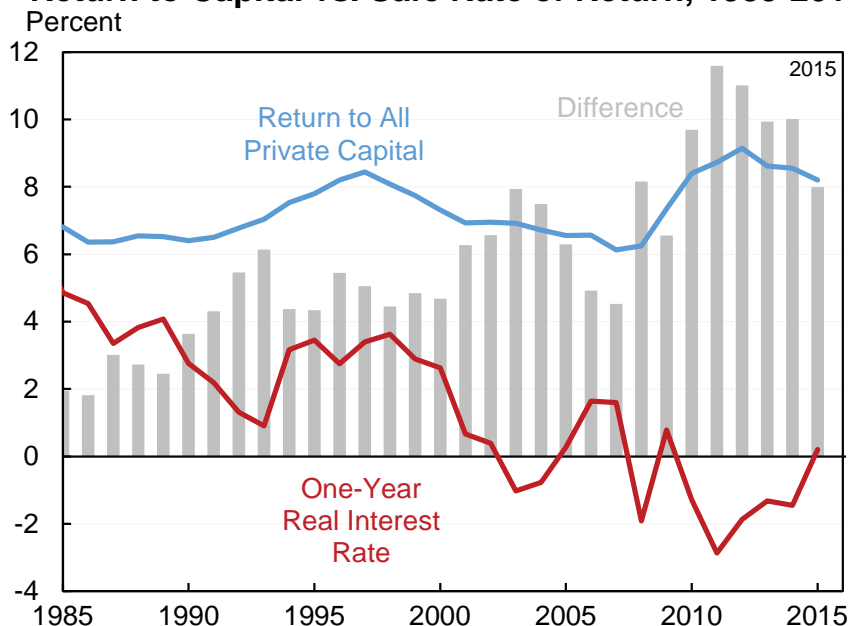# Migration rates of migration have also fallen

Migration Rates by Distance

Source: Molloy, Smith, and Wozniak (2014).

The return to productive capital has risen recently, despite a large decline bond yields…

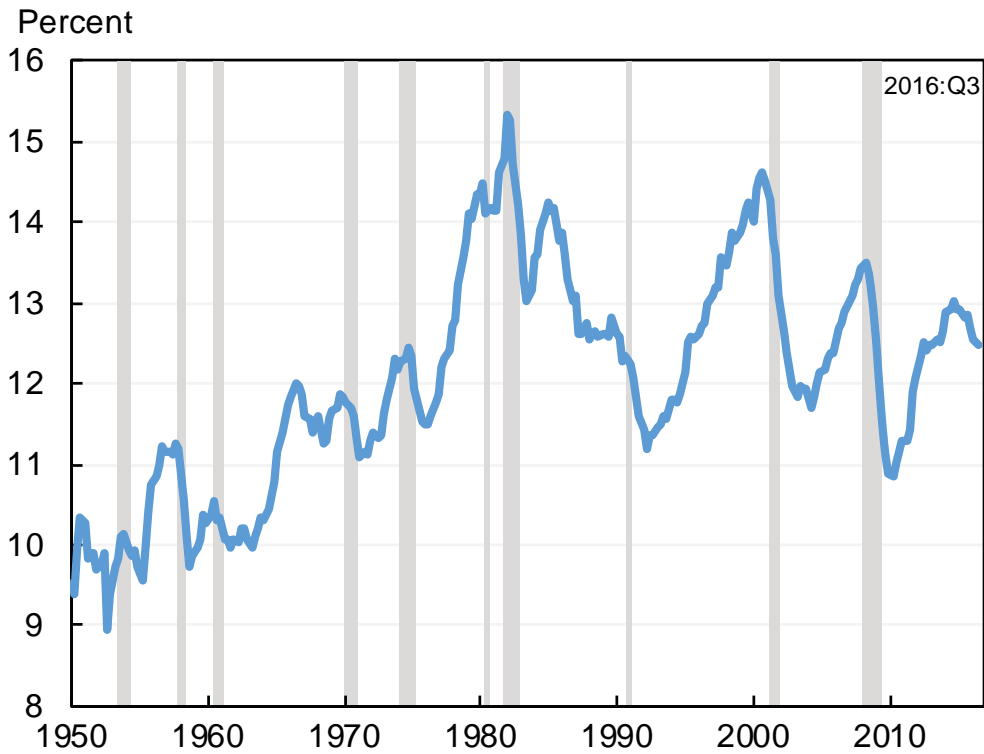**Return to Capital vs. Safe Rate of Return, 1985-2015**

Note: The rate of return to all private capital was calculated by dividing private capital income in current dollars by the private capital stock in current dollars. Private capital income is defined as the sum of 1) corporate profits ex. federal government tax receipts on corporate income, 2) net interest and miscellaneous payments, 3) rental income of all persons, 4) business current transfer payments, 5) current surpluses of government enterprises, 6) property and severance taxes, and 7) the capital share of proprietors' income, where the capital share was assumed to match the capital share of aggregate income. The private capital stock is defined as the sum of 1) the net stock of produced private assets for all private enterprises, 2) the value of total private land inferred from the Financial Accounts of the United States, and 3) the value of U.S. capital deployed abroad less foreign capital deployed in the United States. The return to nonfinancial corporate capital is that reported by the Bureau of Economic Analysis, and the one-year real interest rate is that reported by Robert Shiller at Yale University.
Source: Bureau of Economic Analysis; Federal Reserve Board of Governors; Robert Shiller, Yale University; CEA calculations.

…While business investment has trended down

Business Fixed Investment as Share of GDP

Percent

[Chart showing Business Fixed Investment as a share of GDP from 1950 to 2016:Q3, ranging from about 9 to 15 percent, with grey shading denoting recessions. Labeled 2016:Q3.]

Note: Shading denotes recession.
Source: Bureau of Labor Statistics, National Income and Product Accounts; CEA calculations.

Concentration has increased in most sectors

Change in Market Concentration by Sector, 1997-2012

Industry	Percentage Point Change in Revenue Share Earned by 50 Largest Firms, 1997-2012
Transportation and Warehousing	11.4
Retail Trade	11.2
Finance and Insurance	9.9
Wholesale Trade	7.3
Real Estate Rental and Leasing	5.4
Utilities	4.6
Educational Services	3.1
Professional, Scientific and Technical Services	2.6
Administrative/ Support	1.6
Accommodation and Food Services	0.1
Other Services, Non-Public Admin	-1.9
Arts, Entertainment and Recreation	-2.2
Health Care and Assistance	-1.6

Note: Concentration ratio data is displayed for all North American Industry Classification System (NAICS) sectors for which data is available from 1997 to 2012.
Source: Economic Census, Census Bureau.

Industry case studies

Financial Services: Loan market share of the top ten banks increased from about 30 percent in 1980 to about 50 percent in 2010 (Corbae and D'Erasmo 2013).

Agriculture: Share of revenues held by the top four firms increased between 1972 and 2002 in eight of nine agricultural industries (Shields 2010).

Hospitals: Between the early 1990s and 2006, average Herfindahl-Hirschman index (HHI) increased by about 50 percent to about 3,200, level associated with just three equal-sized competitors in a market (Gaynor, Ho, and Town 2015).
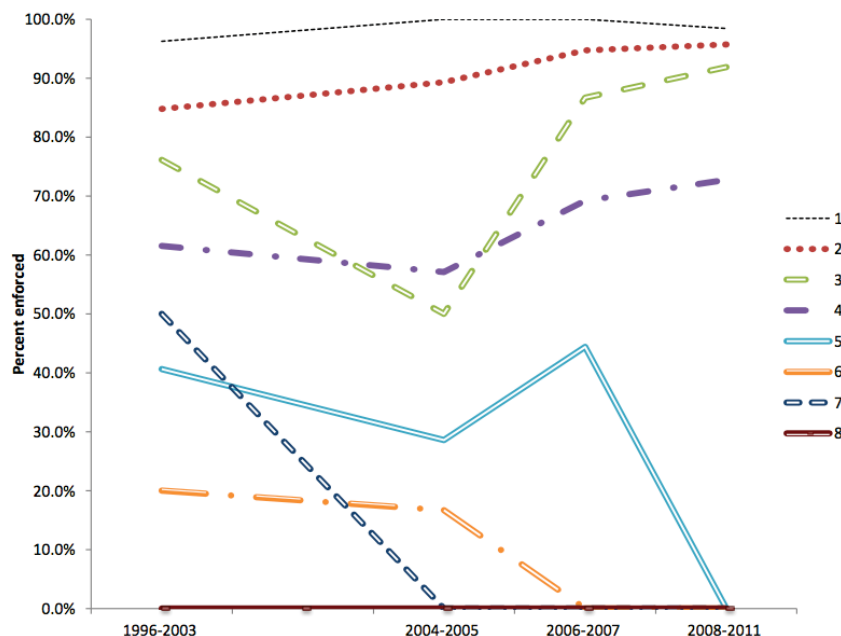
Wireless: Average HHI for wireless providers in a market increased from under 2,500 in 2004 to over 3,000 in 2014 (FCC 2015).

Railroads: Increase in market concentration between 1985 and 2007 (Prater et al. 2012).

Antitrust enforcement has become less vigorous

**FTC Enforcement Rate Against Mergers, Over Time, by Number of Remaining Significant Competitors**

Network externalities


Common ownership has grown

| Delta Air Lines	[%]	Southwest Airlines Co.	[%]	American Airlines	[%]
Berkshire Hathaway	8.25	PRIMECAP	11.78	T. Rowe Price	13.99
BlackRock	6.84	Berkshire Hathaway	7.02	PRIMECAP	8.97
Vanguard	6.31	Vanguard	6.21	Berkshire Hathaway	7.75
State Street Global Advisors	4.28	BlackRock	5.96	Vanguard	6.02
J.P. Morgan Asset Mgt.	3.79	Fidelity	5.53	BlackRock	5.82
Lansdowne Partners Limited	3.60	State Street Global Advisors	3.76	State Street Global Advisors	3.71
PRIMECAP	2.85	J.P. Morgan Asset Mgt.	1.31	Fidelity	3.30
AllianceBernstein L.P.	1.67	T. Rowe Price	1.26	Putnam	1.18
Fidelity	1.54	BNY Mellon Asset Mgt.	1.22	Morgan Stanley	1.17
PAR Capital Mgt.	1.52	Egerton Capital (UK) LLP	1.10	Northern Trust Global Inv	1.02
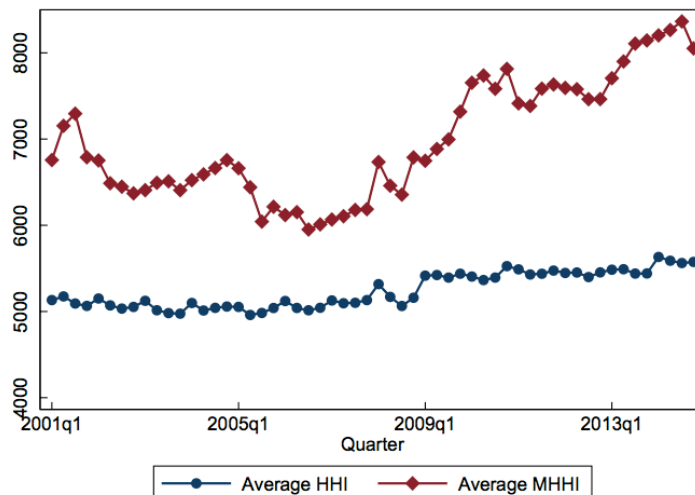
Land use restrictions and occupational licensing are potential sources of reduced dynamism

Real Construction Costs and House Prices Over Time

Index, 1980=100

2013

Real House Prices

Real Construction Costs
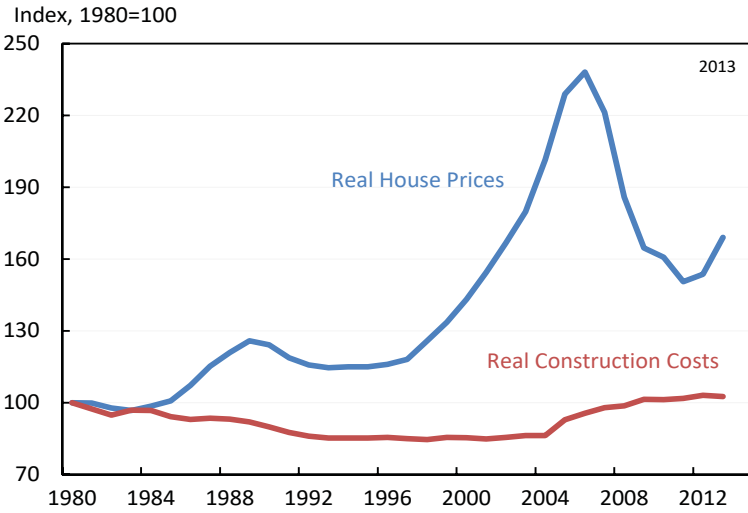
Share of Workers with a State Occupational License

Percent of the Workforce
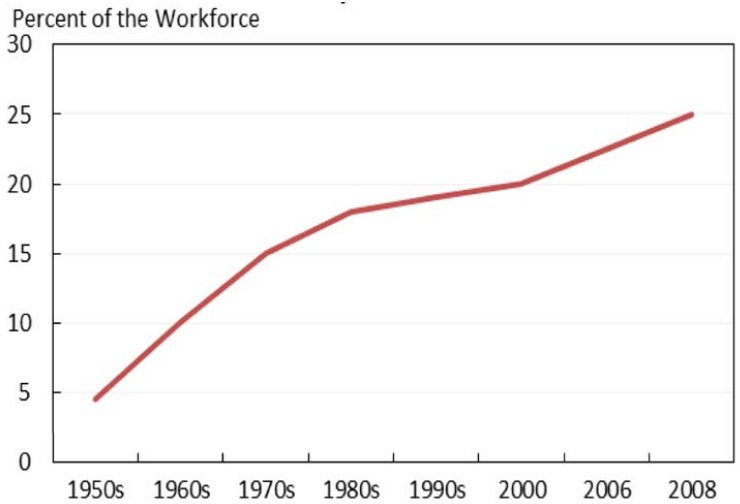
Source: Gyourko and Molloy (2015); The Council of State Governments (1952); Greene (1969); Kleiner (1990); Kleiner (2006); and Kleiner and Krueger (2013), Westat data; CEA calculations..