



**THE SECOND
MACHINE AGE**

WORK, PROGRESS, AND PROSPERITY
IN A TIME OF
BRILLIANT TECHNOLOGIES

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**A Wicked Flip?
Technology
and Workers**

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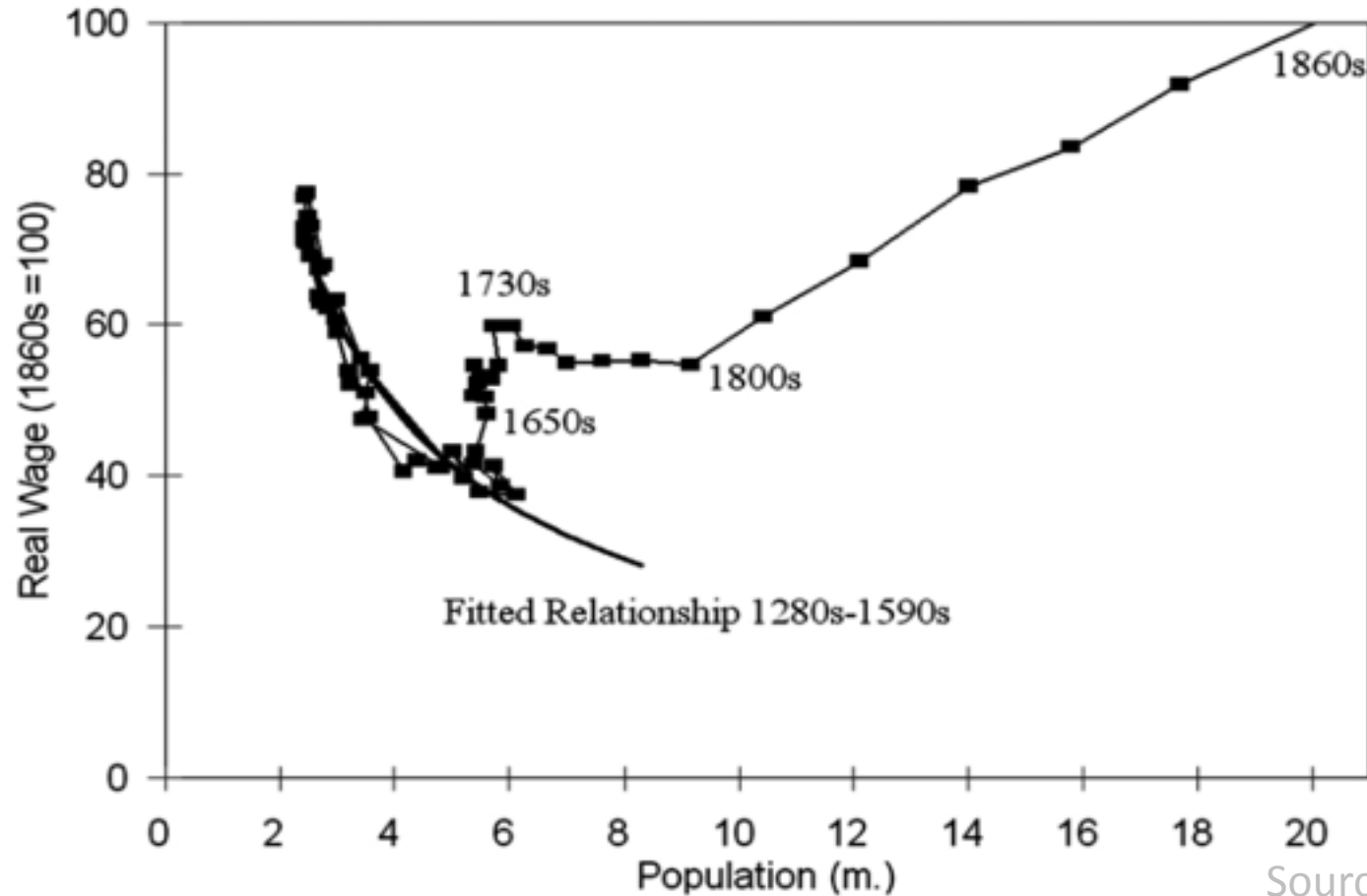
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Two stories about capitalism, which explain why economists don't reach agreement

Posted by [Jonathan Haidt](#) in [Uncategorized](#)

Why is it that if you know an economist's political leaning you can guess many of his or her factual beliefs? Would raising the minimum wage would help or hurt the poor overall? Is

Real Wages vs. Population in England, 1280s – 1860s

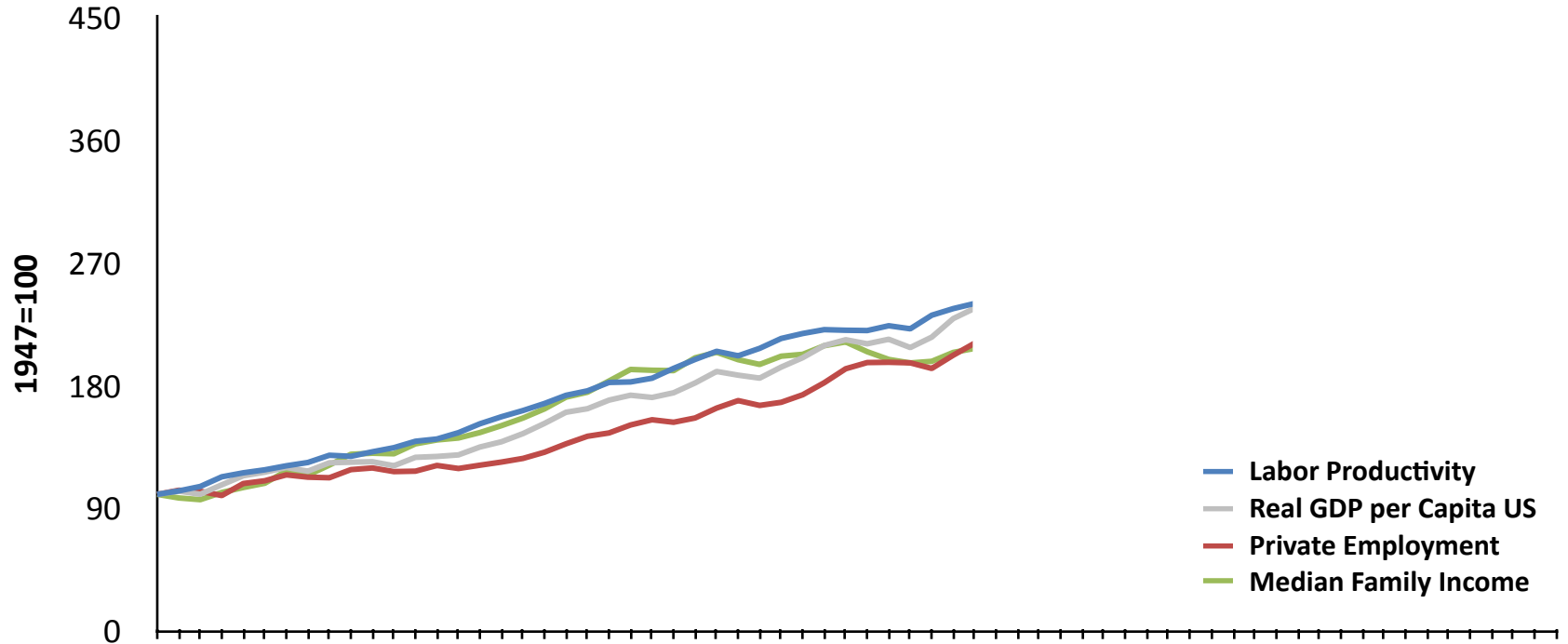


“We are being afflicted with **a new disease** of which some readers may not yet have heard the name, but of which they will hear a great deal in the years to come--namely, **technological unemployment**. This means unemployment due to our discovery of means of economising the use of labour outrunning the pace at which we can find new uses for labour.”

- John Maynard Keynes, 1930

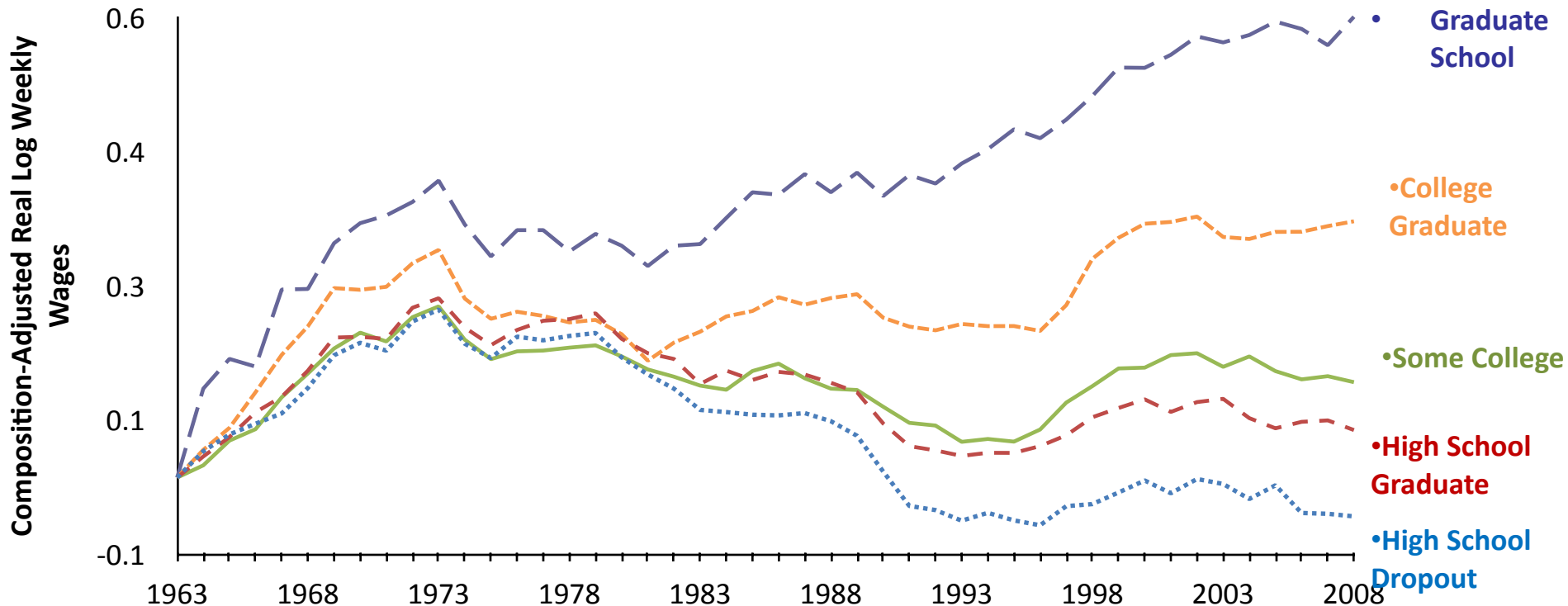
The Great Decoupling

US Productivity, Real GDP per capita, Employment and Income: 1947-2012



The Great Decoupling

Changes in Wages for Full-Time, Full-Year Male U.S. Workers, 1963-2008



Technology-driven

“The adoption of computers substitutes for... workers performing routine tasks—such as bookkeeping, clerical work, and repetitive production and monitoring activities—which are readily computerized because they follow precise, well-defined procedures.”

- Autor and Dorn, 2013

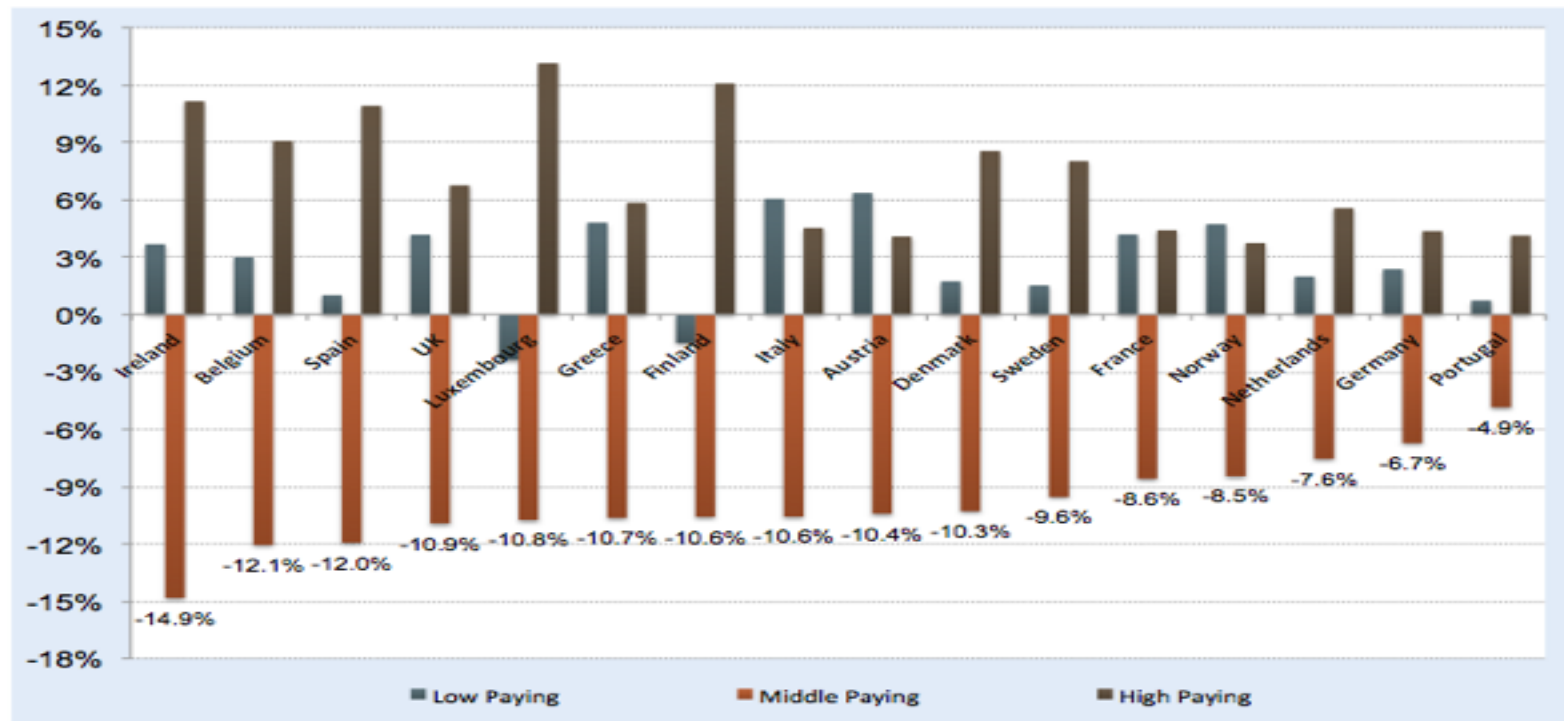
Technology-driven

“We evaluate numerous alternative explanations for the pronounced differences in wage and employment polarization... including **deindustrialization, offshoring, ... and growing low-skill immigration. None of these alternatives appears central to our findings.”**

- Autor and Dorn, 2013

Global

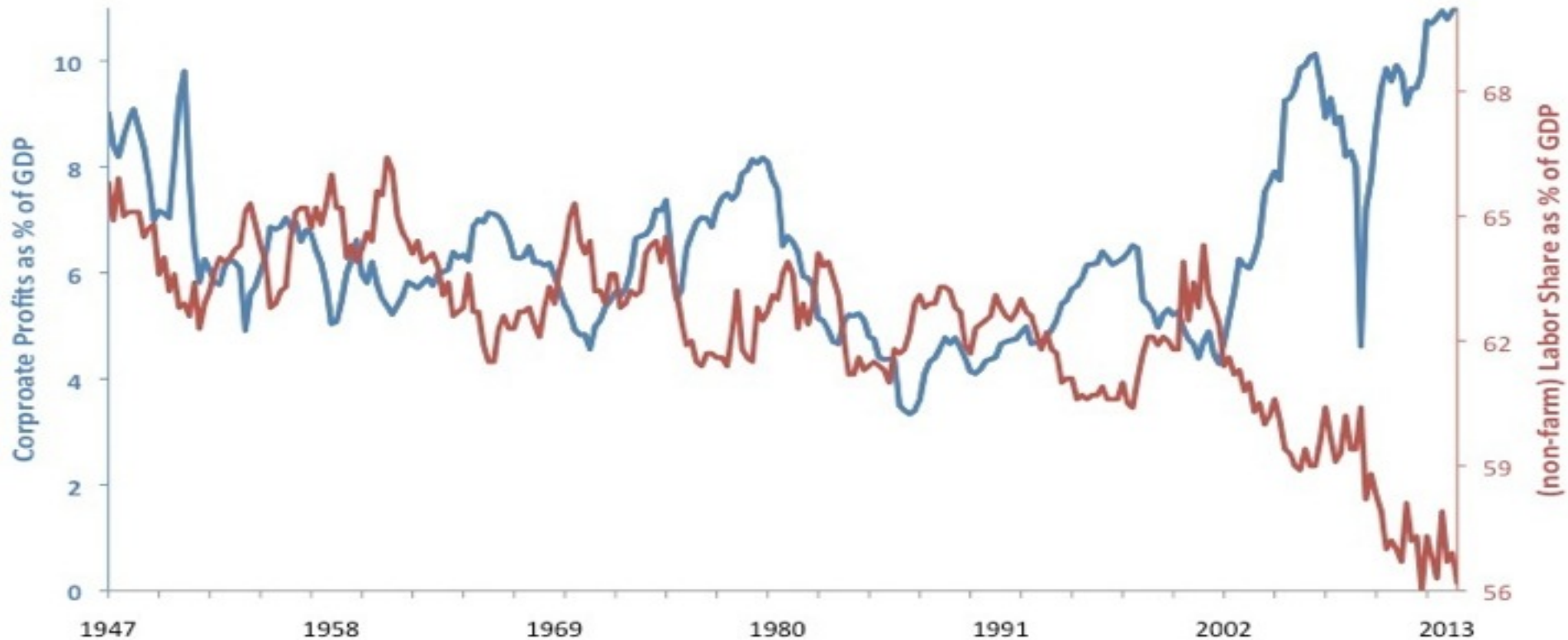
Change in Occupational Employment Shares in Low, Middle and High Wage Occupations in 16 EU Countries, 1993 - 2010



Source: Goos, Manning and Salomons (forthcoming, Table 1). High-paying occupations

Capital / Labor Split

Corporate Profits After Tax and Labor Share as % of GDP, 1947-2013

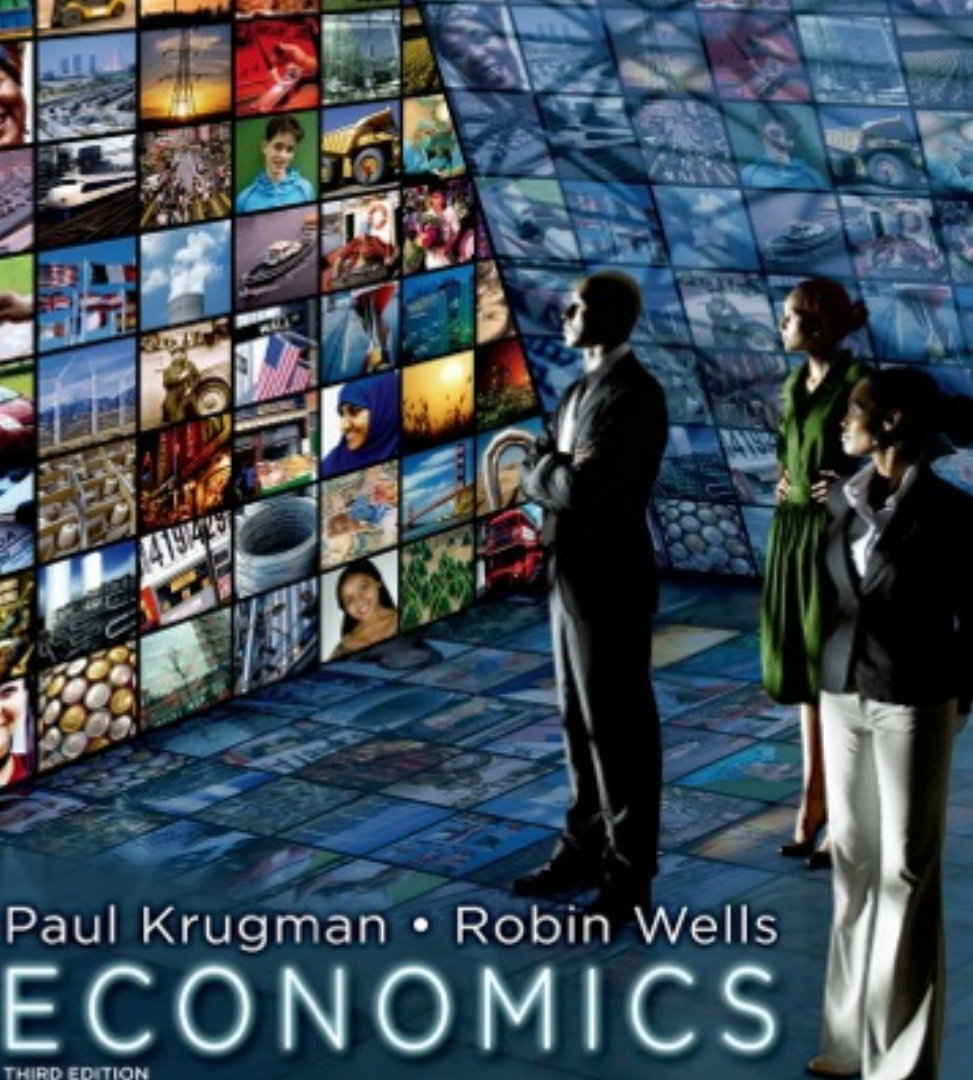


Technology-driven and Global

“We document, however, that the global labor share has significantly declined **since the early 1980s**, with the **decline occurring within the large majority of countries and industries**. We show that the **decrease in the relative price of investment goods**, often attributed to **advances in information technology and the computer age**, induced **firms to shift away from labor and toward capital.**”

- Karabarbounis and Neiman, 2013

Effective Policy Responses



Paul Krugman • Robin Wells

ECONOMICS

THIRD EDITION

PRINCIPLES OF
Economics

N. Gregory Mankiw



The 'Econ 101 Playbook'

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U.S. Students Slide In Global Ranking On Math, Reading, Science

DECEMBER 03, 2013 7:37 AM ET

BILL CHAPPELL

American 15-year-olds continue to turn in flat results in a test that measures students' proficiency in reading, math and science worldwide, failing to crack the global top 20.

The Program for International Student Assessment, or PISA, collects test results from 65 countries for its rankings, which come out every three years. The [latest results](#), from 2012, show that U.S. students ranked below average in math among the world's most-developed countries. They were close to average in science and reading.



A graphic released with the 2012 PISA results shows the annualized change in performance in average math scores between 2003 and 2012. The chart includes only nations that have comparable data from both 2003 and 2012.

PISA

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Academically Adrift

LIMITED LEARNING ON COLLEGE CAMPUSES



RICHARD ARUM AND JOSIPA ROKSA

272 pages | 20 tables, 20 line drawings | 6 x 9 | © 2010

In spite of soaring tuition costs, more and more students go to college every year. A bachelor's degree is now required for entry into a growing number of professions. And some parents begin planning for the expense of sending their kids to college when they're born. Almost everyone strives to go, but almost no one asks the fundamental question posed by *Academically Adrift*: are undergraduates really learning anything once they get there?



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AMERICA'S GPA: D⁺

The American Society of Civil Engineers is committed to protecting the health, safety, and welfare of the public, and as such, is equally committed to improving the nation's public infrastructure. To achieve that goal, the Report Card depicts the condition and performance of the nation's infrastructure in the familiar form of a school report card—assigning letter grades that are based on physical condition and needed investments for improvement.

The 'Econ 101 Playbook'

Education

Infrastructure

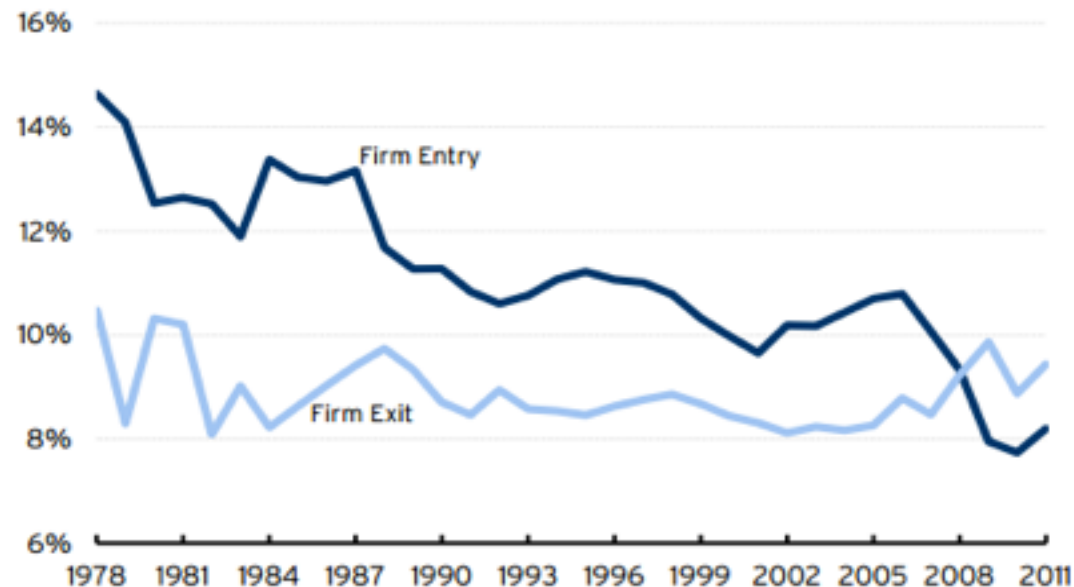
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Figure 1

The U.S. economy has become less entrepreneurial over time
Firm Entry and Exit Rates in the United States, 1978-2011



Source: U.S. Census Bureau, BDS; authors' calculations

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Immigration Reform Stalled In Washington



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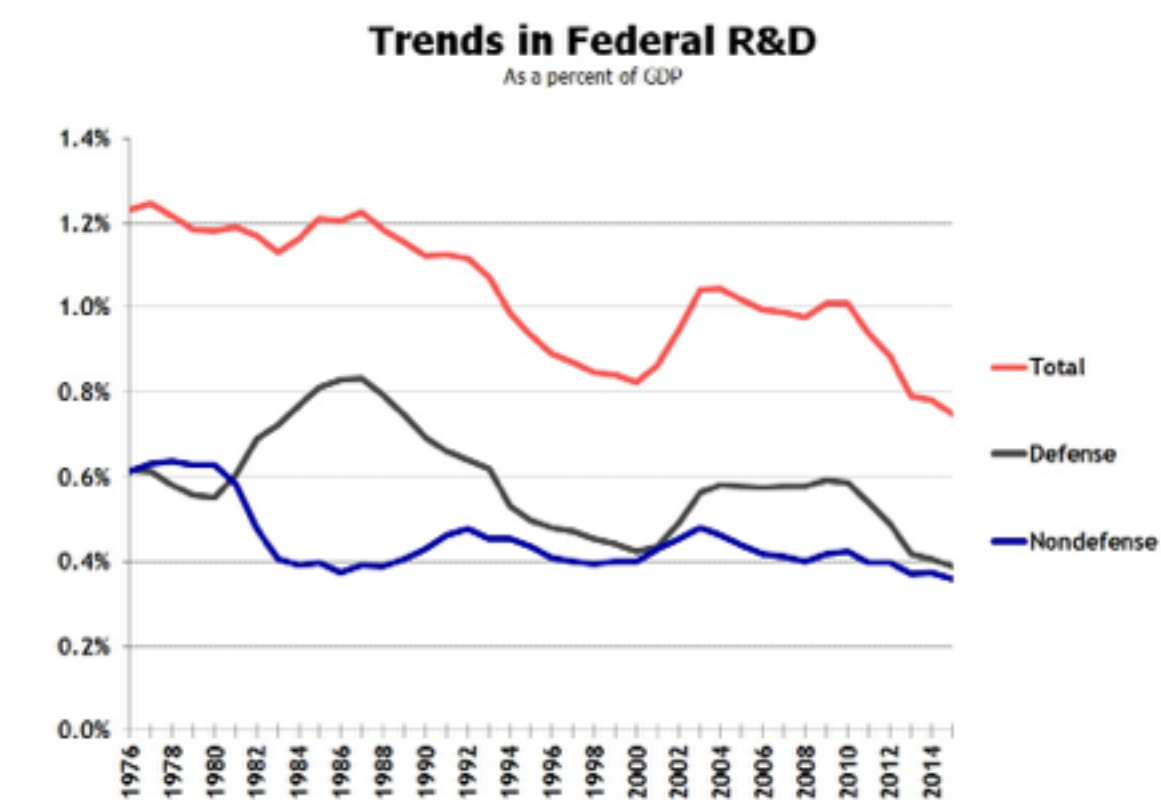
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Source: Up to 1994 - National Science Foundation, Survey of Federal Funds for Research and Development; 1995 to Present - AAAS Research and Development series. GDP figures are from Budget of the U.S. Government FY 2015. FY 2014 and FY 2015 figures are latest estimates. © 2014 AAAS

Conclusion

- Absent intervention, AI advances seem likely to increase the great decoupling
- ... but large tech changes have *always* called for policy interventions
- The Econ 101 playbook is clear, but is not being followed