

Why Was Europe Left at the Station when the American Productivity Locomotive Departed?

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Ultimate Measure of Economic Success

- Standard of Living = Income per capita
 - 1.3% growth, doubles every 53 years (Philippines)
 - 5.6% growth, doubles every 12 years (Korea)
- For very long-term growth or comparing rich and poor nations, Income per capita and productivity are the same thing
- Not the same thing for short-term or comparisons among rich nations

How Productivity is Related to Total Output

Output (Q) Equal to the product of:

- Productivity (Q/A)
- Hours per Employee (A/E)
- Employment Rate (E/L), that's just $(1 - U/L)$
- Labor-force Participation Rate (L/N)
- Working-age Population (N)

$$Q \equiv \frac{Q}{A} \cdot \frac{A}{E} \cdot \frac{E}{L} \cdot \frac{L}{N} \cdot N$$

How Productivity is Related to Output per Capita

Output (Q) Equal to the product of:

- Productivity (Q/A)
- Hours per Employee (A/E)
- Employment Rate (E/L), that's just $(1 - U/L)$
- Labor-force Participation Rate (L/N)
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$$\frac{Q}{N} \equiv \frac{Q}{A} \cdot \frac{A}{E} \cdot \frac{E}{L} \cdot \frac{L}{N}$$

How Could Europe be So Productive Yet So Poor

Output per Capita (Q/N)

In Europe 75% of U. S.

Productivity 95% of U. S.

The Difference:

- Hours per Employee (A/E)
- Employment Rate (E/L)
- Labor-force Participation Rate (L/N)

$$\frac{Q}{N} \equiv \frac{Q}{A} \cdot \frac{A}{E} \cdot \frac{E}{L} \cdot \frac{L}{N}$$

Europe vs. the U. S. since 1870

- The History: Europe falls back 1870-1950 and then catches up
- The catch-up is almost complete in productivity (Q/A)
- The catch-up is incomplete in output per capita (Q/N)
- Why?
 - Must be that Europe's A/N is lower
 - Why?

Per Capita Real GDP

per Capita Real GDP, Europe and the United States,
Selected Years, 1820-2000

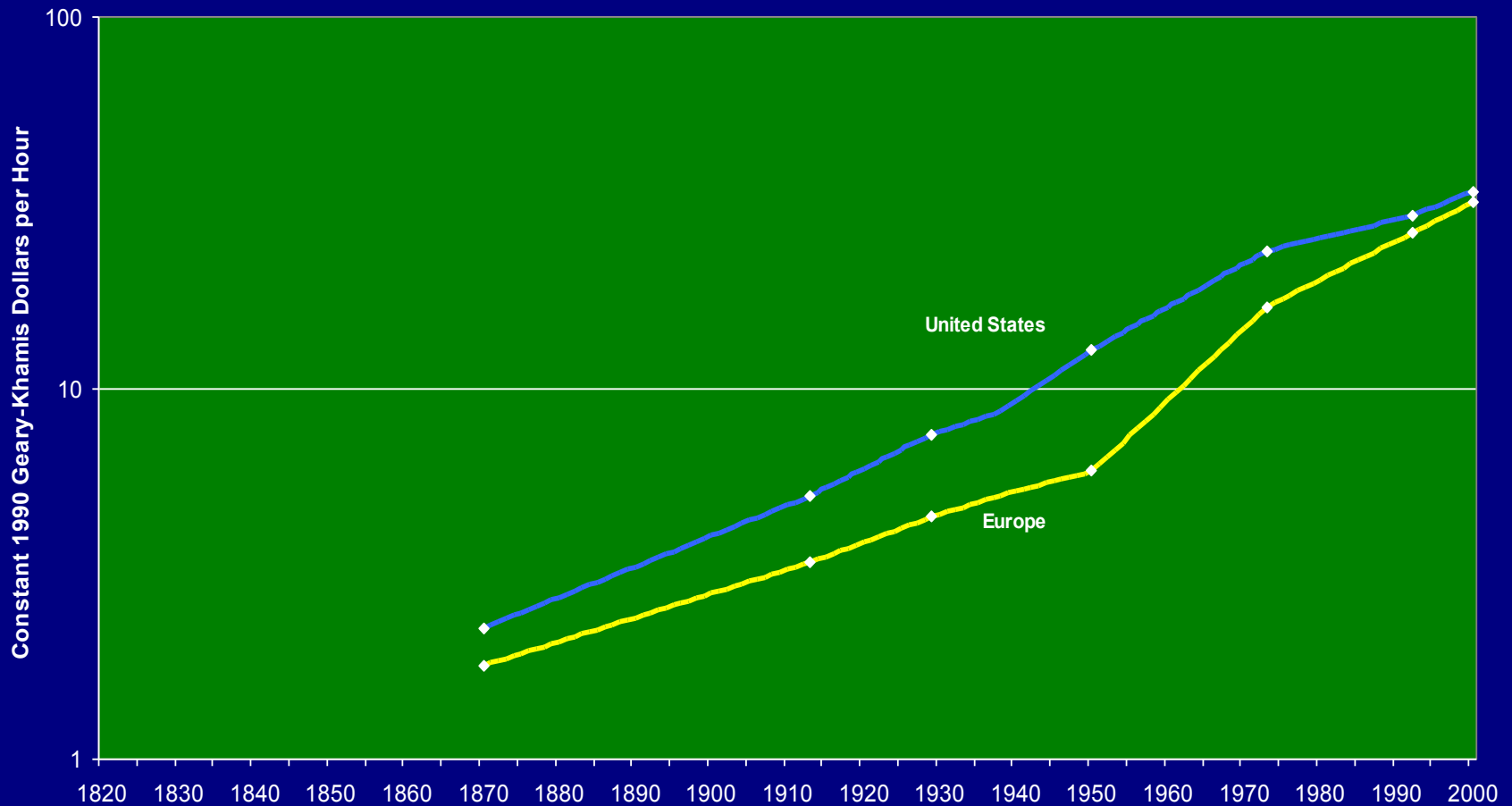


Essential Features of Income per Capita since 1870

- Steady rate of real GDP per capita growth in the US
 - 1.81% per year growth between 1870-2000
 - Huge acceleration between 1963-73
- Slower growth in Europe
 - 1.67% per year growth between 1870-2000
 - Downward dislocations due to the World Wars
 - Golden years of catch-up between 1950-1973
- Since 1973 catch-up is incomplete

Real GDP per Hour

Real GDP per Hour, Europe and the United States,
Selected Years, 1870-2000

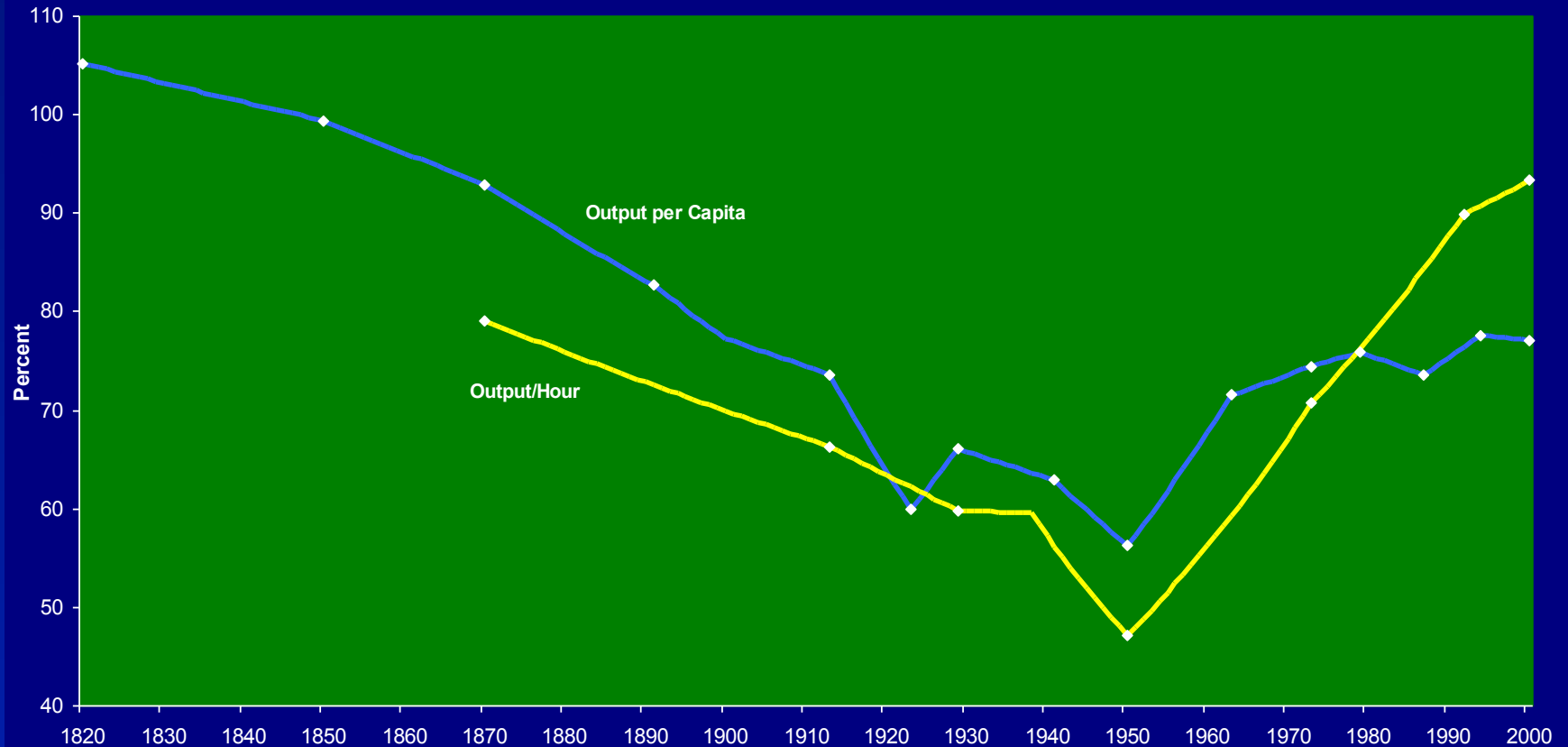


Summarizing the Productivity Record

- U.S. record of productivity growth is not as steady as for output-per-capita
 - Strongest performance between 1938-50
 - Slowdown between 1973-92
- Europe plays catch-up
 - Much slower growth than the U.S. between 1870-1950 (1.50% vs 2.15% for the US)
 - Nearly closes the gap by 2000
- In this section we're ignoring the new divergence after 2000

Output per Capita and Output per Hour

Ratio of Europe to the United States,
Output per Capita and Output per Hour,
selected years, 1820-2000



Features of the Output per Capita, Europe/U.S. ratio

- The Europe/U.S. ratio of output per capita declines steadily from 1829 to 1950.
- Upsurge from 1950-1973
- Stagnation between 1973-2000

Europe/U.S. ratio for productivity growth

- The same downward slide between 1870 and 1950
- Europe has a higher level of hours per capita
- After 1950 much faster growth in the productivity ratio

Real GDP per Capita and Real GDP per Hour

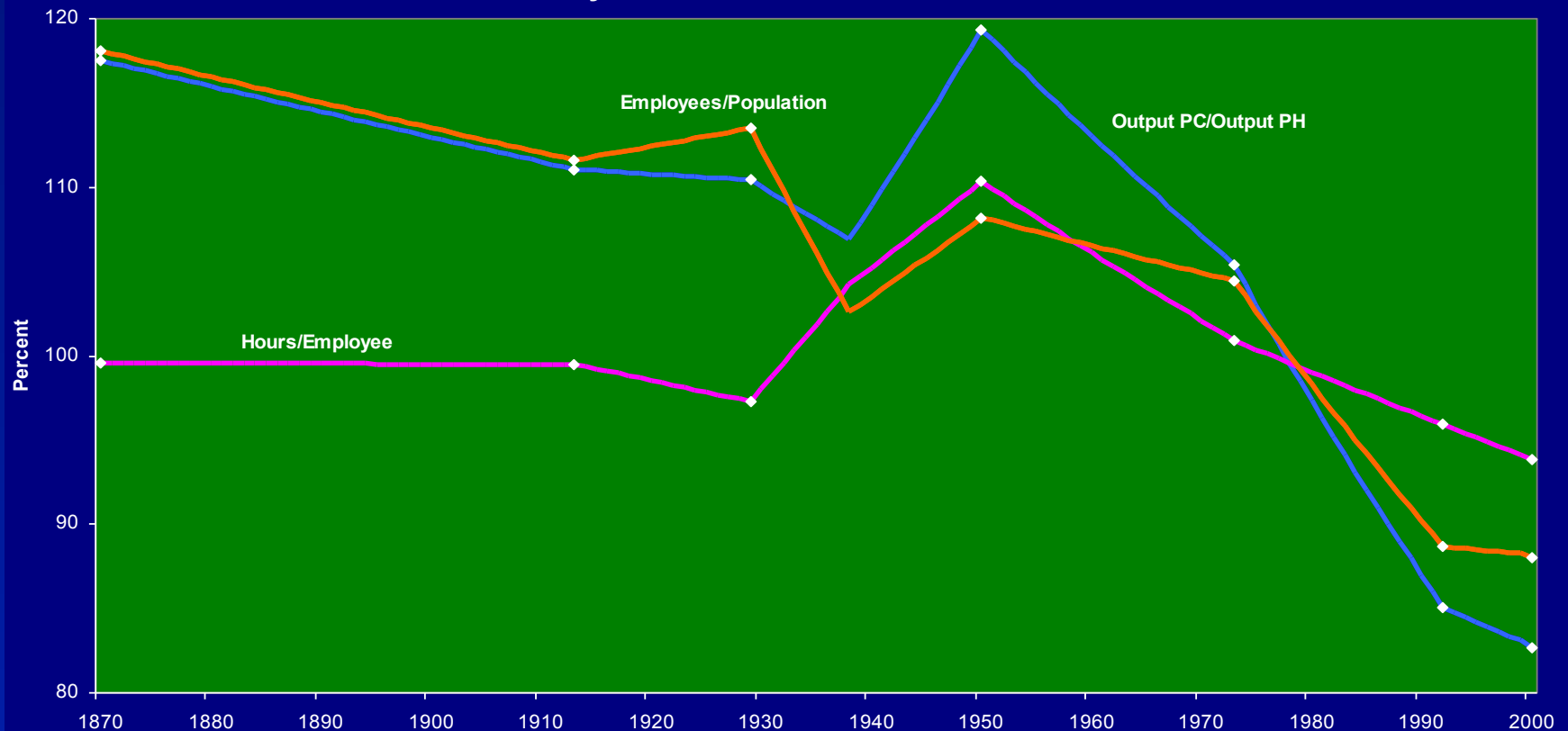
	1820-70	1870-1913	1913-1929	1929-1950	1950-1973	1973-2000
Output per Capita						
Europe	1.05	1.25	0.97	0.79	3.61	1.77
U. S.	1.29	1.79	1.65	1.55	2.40	1.64
Europe - U. S.	-0.24	-0.54	-0.68	-0.76	1.21	0.13
Output per Hour						
Europe		1.49	1.76	1.35	4.44	2.40
U. S.		1.90	2.40	2.48	2.68	1.37
Europe - U. S.		-0.41	-0.64	-1.13	1.76	1.03
YpC / YpH						
Europe		-0.24	-0.79	-0.56	-0.83	-0.63
U. S.		-0.11	-0.75	-0.93	-0.28	0.27
Europe - U. S.		-0.13	-0.04	0.37	-0.55	-0.90

The Post-1950 Reversal

- Sharp turn of Europe/U.S. ratios of output per capita and productivity after 1950.
- Sharp retardation in growth of output per capita in Europe relative to productivity growth after 1950.
 - Longer vacations contribute to few hours worked per employee

The Contributions of E/N and H/E

Ratio of Europe to the United States, Ratio of Output per Capita to Output per Hour, Decomposed into Hours/ Employee and Employee/Population Ratios, selected years, 1870-2000



Standard of living: held down by vacations (H/E)

- Have citizens chosen to use their prosperity to take longer vacations in contrast to Americans?
- Have Europeans been forced to take vacations because of union or parliamentary politics?

Ian on Work Hours

- “To call long work hours in America a bad thing seems odd”
- “People here have the choice to work as long as they want”
 - “Europeans would work longer if they could”
 - “France wouldn’t need labor police if nobody wanted to work more than 35 hours”

Europe's Low E/N Matters as much as Low H/E

- High Unemployment
 - High Youth Unemployment
 - High long-term Unemployment
- Low Labor-force Participation
 - Of Youth
 - Of Elderly

Causes of Low E/N

- Lack of Job Opportunities for Youth:
 - Late Marriage Ages
 - Late Development of Independence
 - U. S. Youths working in High School and College
 - Low Fertility Rates
 - Italy: Living at Home with Mama

Poor Labor-Market Performance in Europe

- Why is Average EU Unemployment Rate Higher than US, LFPR Lower?
- Minimum Wages, U Benefits
- Regulations on Hiring, Firing, Plant Closings, Plant Openings
- Prescott blames it all on taxes
- This is an old Story, still valid

Phelps' Refreshing departure from Vagueness

- Too little competition, too much corporatism
- “penalties, impediments, prohibitions, mandates” that dampen “creative destruction”
- Youth in America vs. Europe, culture of “dependency”
- American teens work at McDonalds, pay part of their college expenses
- Those Italian men!

Other Big Issues

- GDP Exaggerates U. S. GDP per Capita
 - Extreme climate, lots of air conditioning, low petrol prices, huge excess energy use
 - U. S. urban sprawl: energy use, congestion
 - Crime, 2 million in prison
- U. S. Medical Care Inefficiency
 - Raises Business Costs
 - Inefficiency, Insecurity
- U. S. Social Security Crisis can be put off almost forever through open immigration

This is not black vs. white. It reflects different values

- U. S. Low-density metro areas dependent on auto, high unmeasured cost of traffic congestion, subsidies to auto transit, starvation of public transit
- Europe high-density metro areas, unmeasured time cost of public transit, subsidies to public transit

Ian on Urban Density

- “We overspend on highways, they overspend on trains”
- “We live in suburbs and have long commutes, they live in cramped homes and are closer to work”
- “We have options: in Chicago I can live in a suburb and drive OR live in an apartment and walk to work”
- Contra Ian, many Americans lack such options
 - Inner city African Americans seeking suburban jobs
 - Many medium and small cities have virtually no public transit options, and there are few jobs where you can “walk to work”

A Solid Reason why the U. S. Welfare Level is Truly Higher

- Hedonic regressions show: people value square feet of housing and exterior land
- The average American housing unit is more than double the average European unit
- The land area is at least 4x, maybe more
- The time cost of commuting may be less when all the delays of public transit are taken into account

Summarizing Welfare Comparison

- Started with Europe/ US Ratios

Q/N 77

Q/A 93

- One-third of A/N is voluntary

Q/N 82

Q/A 93

- One-half of remaining YPC difference disappears because U. S. GDP is overstated

Q/N 91

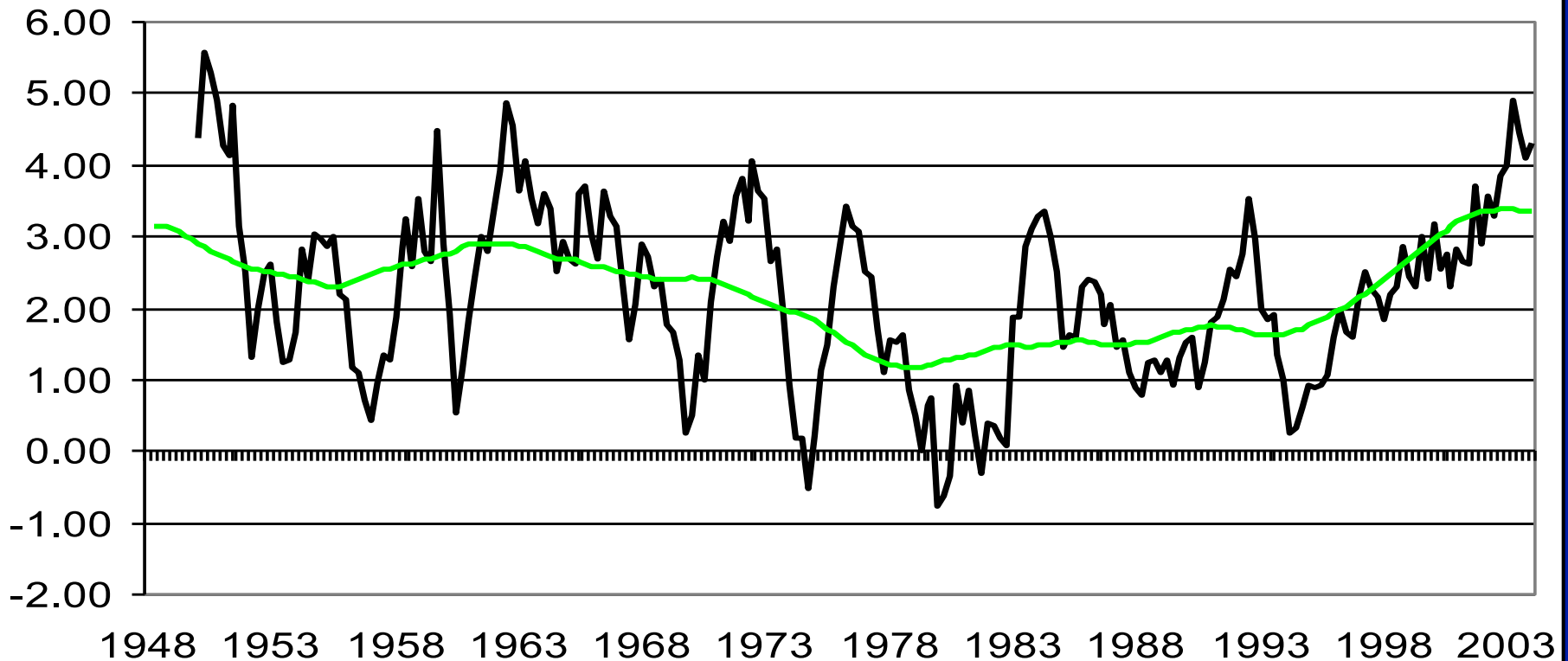
Q/A 102

The New Productivity Divergence

- Focus on 1995-2003
- Growth rates of GDP per Hour Worked
 - U. S. 2.33
 - Europe 1.15
 - Difference 1.18
- Over eight years, causes Europe/US to fall back from 94 to 85 percent

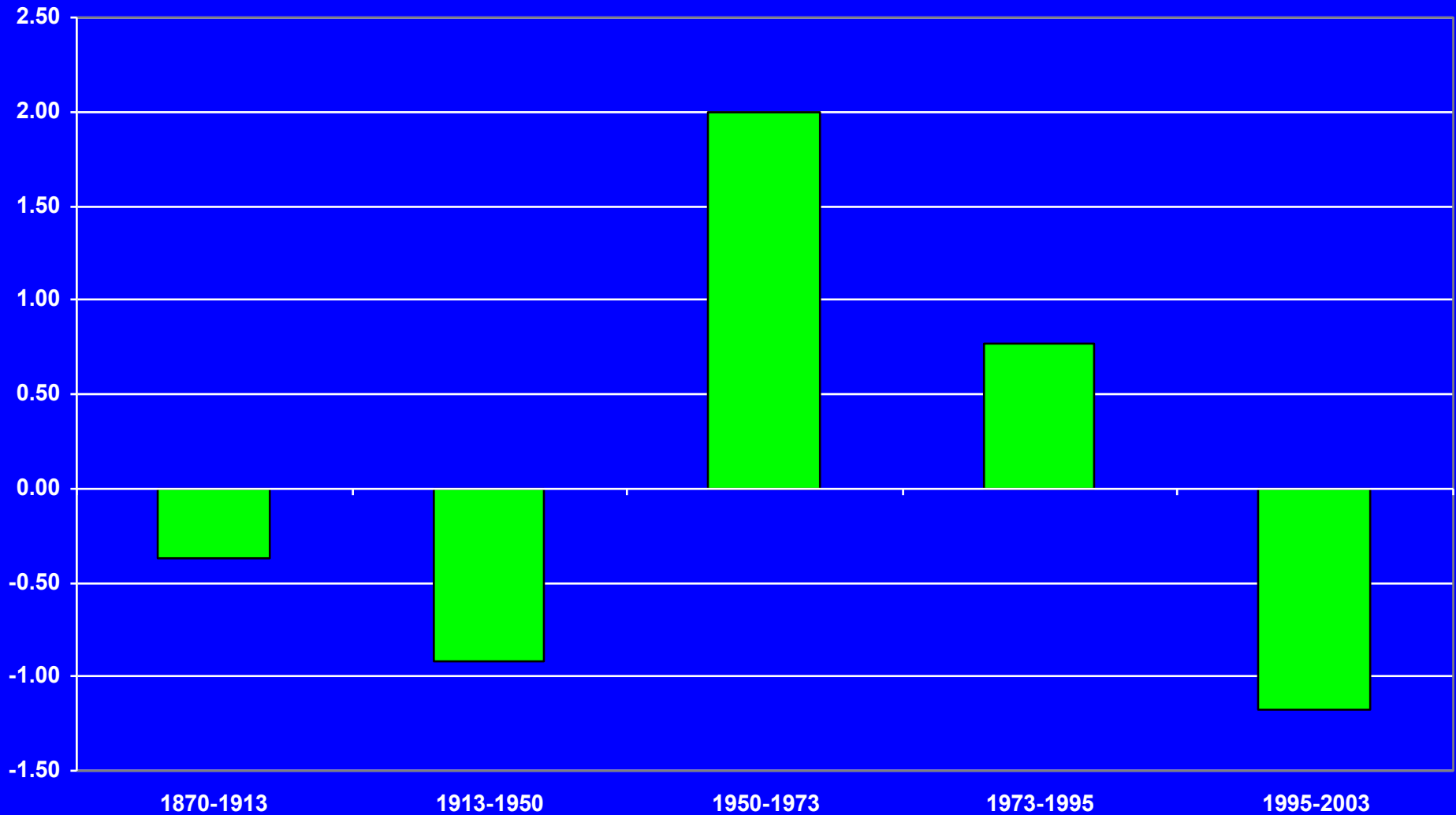
The U. S. Productivity Growth “Explosion”

LP Actual vs Trend



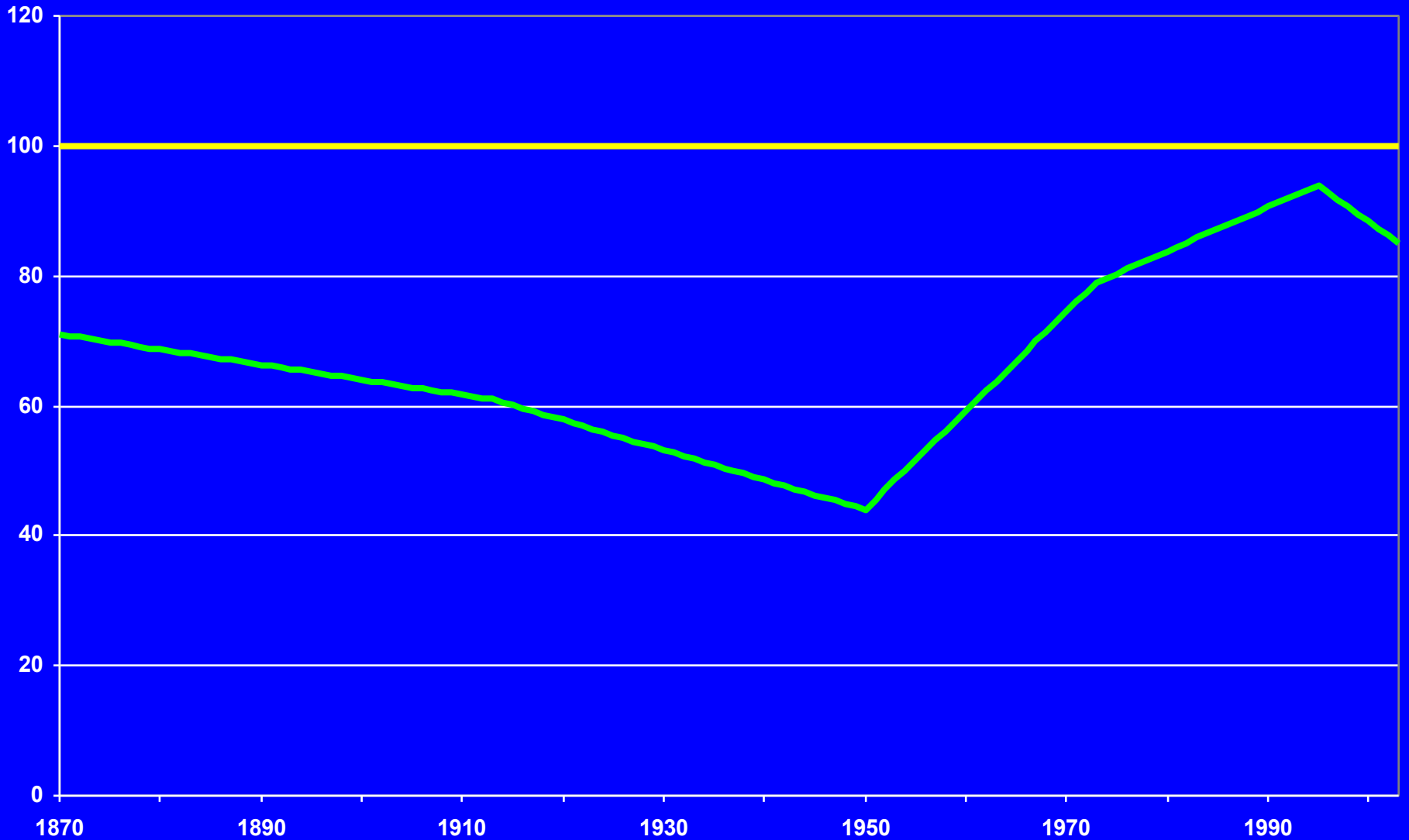
133 Years: Falling Behind, Catching Up, Now Falling Behind

Annual Growth Rate of GDP per Hour,
EU minus US, 1870-2003



The Reversal Shown in Levels

GDP per Hour, EU as a percent of US, 1870-2003

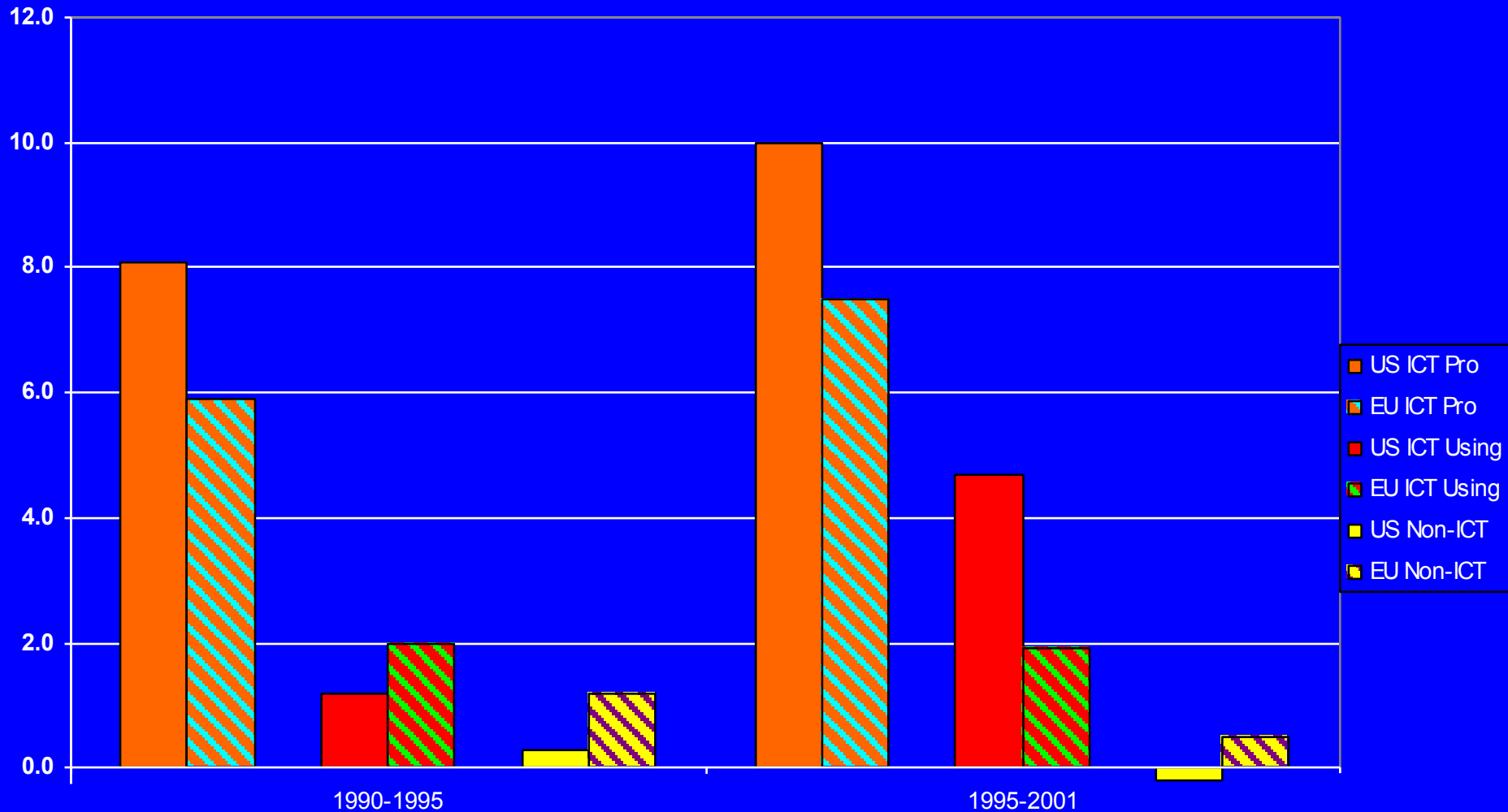


Basic Paradox about IT

- Both Europe and U. S. Rapidly Adopted New Economy Technology
 - Personal Computers
 - Web Access
 - Mobile Phones
- But Europe hasn't taken off
- Conclusion: Role of IT in U. S. revival must have been exaggerated

Finding the Culprit Industries

Output per Hour by Industry Group, EU and US, 1990-2003



Where is the Difference? The Van-Ark Decomposion

- 55% retail trade
- 24% wholesale trade
- 20% securities
- Rest of the economy: ZERO
- U. S. negative in telecom,
backwardness of mobile phones

U. S. Retail Miracle

- Not uniform, concentrated in “large stores charging low prices with self-service format”
- *ALL* of productivity gains post-1990 attributable to *NEW* establishments and closing of old establishments
- Average pre-1990 establishment had *zero* productivity growth

Europe in Retailing

- Not uniform – Carrefour, Ikea
- U. S. “Big Boxes” (Wal-Mart, Home Depot, Best Buy, Target)
- Europe:
 - Land-use regulation, planning approval
 - Shop-closing restrictions on hours
 - Central-city congestion, protection of central-city shopping precincts
 - Prohibition on discounting by large new stores
 - Related to Phelps’ corporatism

Not enough emphasis on new vs. old

- It's not just that land-use planning prevents Wal-mart from setting up a new big box on every highway interchange in Europe
- It's that the MIX of retailing in Europe is heavily composed of small, old-fashioned firms

Let's Walk down a street in Paris on the Left Bank

- Every few blocks, a green cross indicating a pharmacy
- To American eyes, these are antique anachronisms
 - One-by-one service at the counter, no check out stations
 - Tiny, small, don't carry any of the obvious things that a pharmacy should carry. Compare to the ubiquitous Walgreens.

Incentives for Innovation in the U. S. and Europe

- Discontinuities in technical change
- Japanese success in 1980s didn't lead to Japanese success in 1990s
 - Carriage makers didn't dominate autos
 - Steam-engine locomotive builders didn't dominate diesels
 - Japanese auto prowess didn't translate to chips or software

Role of the Product Cycle

- No matter which country makes the initial invention, production diffuses
 - Role of Taiwan, Singapore, now China in making computers and peripherals
- U. S. invented videotape recorders
- What ever happened to Wang, Digital Equipment, and the mini computer?

Traditional Sources of U. S. Advantage

- Labor scarcity, land abundance
 - Early leadership in ag machinery
 - Petroleum resources led to early lead in petrochemicals
 - BUT: Japan, NL have few natural resources
- Early lead in autos and motor transport
 - Mass production
 - Long distances, cheap land
 - 80% of world production in 1929, led to “arsenal of democracy”

Education and University Research

- U. S. leadership in secondary education, 1910-40
- U. S. leadership in college education, post WWII
- U. S. research universities America's leading export industry even in dismal 1972-95
 - U. S. peer reviewed grants to young professors, not young students
 - Contrast with Europe tuition subsidies

Government-Funded Research

- Subsidies go back to land grants for RR, homestead act, agricultural research stations
- Role of NIH, NSF
- U. S. mix of private and state-funded universities
- Europe: General budgetary support without incentives

Strong Patent Protection

- Other countries differ
- In pharmaceuticals, some foreign research labs moving to U. S.
- Controversy about U. S. citizens funding drug research for the world

Language and Immigration

- Spread of English worldwide
- One source of U. S. dominance of software industry
- Immigration: role of India, East Asia in supplying Silicon Valley entrepreneurs
- Foreign students at U. S. graduate schools

Four Reasons Why 2000-03 Productivity Growth Should not be Extrapolated

- #1 Profit Squeeze has been reversed
- #2 Intangible Capital Hypothesis; disequilibrium is being corrected
- #3 Diminishing returns: geometric growth of Moore's law vs. limits of human brain and fingers
- #4 Jorgenson-Ho-Stiroh on Labor Quality
 - 1995-2001 0.38 percent contribution
 - 2001-2011 0.16
 - 2011-2021 0.02
- #5 What is the right time horizon for forecasting 10 years, 20 years, 75 years?