Productivity Growth in the US and EU: Possible Lessons for India?

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Presentation at
Sixth Annual NBER-NCAER
Neemrana Conference,
January 17, 2005
Income per Capita: Ultimate Measure of Economic Success

Power of Compounding: The “Rule of 70”
- 1.3% growth, doubles every 53 years (Philippines)
- 5.8% 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 changes or comparisons among rich nations.
  - Even in an application to poor nations the distinction between consumption welfare and productivity matters.
    - (Rob Feenstra on the terms of trade)
Income per Capita vs. Productivity: Central to Understanding the US vs. EU

- The ultimate goal of economic policy is growth in output per capita \( (Q/N) \)
- Productivity is output per aggregate hour worked \( (Q/A) \)
- Growth in output per capita differs from productivity when hours per capita \( (A/N) \) change
How Could Europe be So Productive Yet So Poor?

Output per Capita \( \frac{Q}{N} \)

In Europe 75% of U. S. (failure to converge)
Productivity 95% of U. S.

The Difference:
- Hours per Employee \( \frac{A}{E} \)
- Employment Rate \( \frac{E}{L} \)
- Labor-force Participation Rate \( \frac{L}{N} \)

\[
\frac{Q}{N} \equiv \frac{Q \cdot A \cdot E \cdot L}{A \cdot E \cdot L \cdot N}
\]
Rich vs. Poor Nations: Solow Model Predicts Convergence

- Technology is Freely Available
- All that Holds Back Poor Nations is Low Capital-Labor Ratio
- Marginal Product of Capital is MUCH higher in Poor Countries
- Implies Universal Convergence
POOR NATIONS GROW FASTER WHILE THEY ARE CONVERGING

Long-run equilibrium

Output per hour \( \frac{dQ}{dt} \)

Rich nations

Poor nations

Time
Cross-Country Data: Solow Model Makes a Strong Graphical Prediction

- Convergence Implies the Poorest Nations Grow Fastest
- Look at data over a long period, 1960-2000
- Plot Initial Q/N on the horizontal axis (as a percent of the U. S.)
- Plot Subsequent growth on the vertical axis
- Strong prediction that the plotted points across all countries should have a negative slope
The Failure of Convergence, 1960-2000 (PWT6 data)

Fig. 11-3
Convergence in Large Asian Nations, 1960-2000

Average Growth, 1960-2000

- U.S.
- South Korea
- China
- Japan
- Indonesia
- Pakistan
- India
- Bangladesh

0.0% 1.0% 2.0% 3.0% 4.0% 5.0% 6.0% 7.0%
1960-80 vs. 1980-2000: India Does Much Better


- U.S.
- South Korea
- China
- Japan
- Indonesia
- Pakistan
- India
- Bangladesh
Level Relative to U. S., 1960 and 2000

South Korea

China

Japan

Indonesia

Pakistan

India

Bangladesh
How Can Europe be So Productive Yet So Poor

- The History: Europe falls back 1870-1950 and then catches up
- The catch-up, at least until 1995, was almost complete in productivity (Q/A)
- The catch-up petered out in output per capita (Q/N)
- Why?
  - Must be that Europe’s A/N is lower
  - When did Europe’s A/N decline?
  - How is it decomposed, A/E vs. E/N?
The Following Graphs are Based on a NBER WP

- “Two Centuries of Economic Growth: Europe Chasing the American Frontier”

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- Just type “Robert J. Gordon” into Google
- Don’t type “Robert Gordon” which will give you Robert Gordon University in Scotland
Per Capita Real GDP: Another Failure of Convergence

per Capita Real GDP, Europe and the United States, Selected Years, 1820-2000
Real GDP per Hour, Europe and the United States, Selected Years, 1870-2000
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
Decomposing the Decline in A/N into A/E and E/N

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
The Basic Irony: Europe Catches Up in Productivity by Cutting Hours per Capita

- Making Labor Expensive to Hire with High Minimum Wage and High Payroll and Social Taxes on Labor
- Pushes Firms Back up the Labor Demand Curve
  - Hours are Cut
  - Marginal and Average Product of Labor are Raised
  - Shortage of jobs, esp. low-skilled job
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?
- Not Just Vacations, Short Work Weeks
  - The French Hours Police
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
  - Average retirement age in France is 58
Social Consequences of Low E/N

- Lack of Job Opportunities for Youth:
  - Late Development of Independence
    - U. S. Youths working in High School and College

- Consequences for Adults
  - Late Marriage Ages
  - Low Fertility Rates
  - Italy: Living at Home with Mama
Phelps: Corporatism in EU, Competition in U. S.

- Corporatism: “penalties, impediments, prohibitions, mandates” that dampen “creative destruction”
  - Does this sound familiar, Indians?
- Youth in Europe, culture of “dependency”
- European youth expect college education for free
- American teens develop independence at age 16 by working at McDonalds
- American college students work and borrow to pay part of their college expenses
Arc de Triomphe in every U. S. City?
Is Q/N Exaggerated?

- Three categories of reasons
  - Excess Energy Use
    - Harsh Climate, Air conditioning
    - Low petrol taxes, high petrol use
    - Overly dispersed metro areas, more energy use
  - Low density means commuting congestion
  - 2m people in prisons, wasted lives and resources

- U. S. Medical Care Inefficiency
  - Medicare Financing Crisis
  - Lack of universal health insurance
  - Defined benefit pension plans and retiree medical costs hurt “legacy” firms
    - General Motors vs. Toyota
Summarizing Welfare Comparison

- Started with Europe/US Ratios
  
  \[ Q/N \ 77 \] \[ Q/A \ 93 \]

- One-third of A/N difference is voluntary

  \[ Q/N \ 82 \] \[ Q/A \ 93 \]

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

  \[ Q/N \ 91 \] \[ Q/A \ 102 \]

- Growth rates of GDP per Hour Worked
  - U. S. 2.3
  - Europe 1.2
  - Difference 1.1

- Over eight years, causes Europe/US productivity ratio to fall back from 94 to 85 percent
The U. S. Productivity Growth “Explosion”
Basic Paradox about IT

- Both Europe and U. S. Rapidly Adopted New Economy Technology in late 1990s
  - 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

- US ICT Pro
- EU ICT Pro
- US ICT Using
- EU ICT Using
- US Non-ICT
- EU Non-ICT

1990-1995
1995-2001
Where is the Difference?
The Van-Ark Decomposition

- 55% retail trade
- 24% wholesale trade
- 20% securities
- Rest of the economy: ZERO
- U. S. negative in telecom, backwardness of mobile phones
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
  - Protection of central-city shopping precincts
  - The MIX of retailing heavily skewed to old-fashioned small retail units
    - Paris drug stores vs. Walgreens

- Unusual degree of downward pressure on profits
- Intangible capital became important after ICT boom
  - Productivity benefits of ICT investment could have been delayed
  - Mismeasurement of timing of productivity growth
- Questions: Profits are now booming, shouldn’t productivity effect go away?
- Productivity growth <2.0% 04:Q3 + 04:Q4
Lessons for India from Comparing EU and US

First, We Must Qualify This Heavily
- Nothing in EU or US remotely comparable to the poverty population in India.
- Indians on their own in policies to reach that “last mile” into the rural villages

Corporatism vs. Competition: India is the Expert on Corporatism
- India also knows about small traditional retailing
- India is an expert on land-use planning, a key explanation of why Europe has lagged behind US in retail productivity growth
- Encourage Development of Large-Format Retailing
Lessons, Part II

- A Subtle Conclusion about Infrastructure
  - France Has Better Infrastructure than US
    - Freeways = US Interstate Highways
    - TGV
    - Paris: metro, RER, busses (with electronic signs)

- But France has slow Economic Growth

- Conclusion: Infrastructure is neither necessary nor sufficient for econ growth
More Thoughts About India

- “India is Long on Engineering Graduates and Short on Roads”
- Divert Resources by developing an educational opportunity bank, make ugrads borrow, then repay contingent on future income
- Put freed resources into primary, secondary education
Final Thoughts About Infrastructure

- Why Should the Government Raise its Fiscal Deficit to Finance an Airport?
- The World is Waiting to Develop India’s Airports
  - The Big 3: BAA, Schipol, and FRAPORT
  - Paraphrasing Churchill 1941 ("give us the tools and we will finish the job")
  - Give us the land and we will build your airports