Annual Report Essay
Altered States: A Perspective on 75 Years of State Income Growth
Georgia State University Economic Forecast
November 15, 2006
IN THE ANNUAL REPORT WE ASK:

• Why do residents of some states have higher incomes than residents of other states?

• Why have these income differences persisted for the past 75 years?
BASED ON A LONG-TERM RESEARCH PROJECT

• An Early Initiative of our Regional Issues Program
• Paul Bauer, Scott Shane (of Case), and myself
• State Growth Empirics (Federal Reserve Bank of Cleveland Working Paper 06-06)
BASIC STATE
INCOME GROWTH FACTS
Figure 1

Income Growth

Real Per Capita Income, Thousands of Dollars

Year

Highest state
90th percentile
Median state
10th percentile
Lowest state
Figure 1

Income Growth

Real Per Capita Income, Thousands of Dollars

Year


New York $9,703

Mississippi $1,882

- Highest state
- 90th percentile
- Median state
- 10th percentile
- Lowest state
WHAT SHOULD WE EXPECT TO SEE?
BASIC (SOLOW) MODEL

• Simple workhorse macro model that tells how much output to expect based on capital, labor, and technology
BASIC (SOLOW) MODEL

• Simple workhorse macro model that tells how much output to expect based on capital, labor, and technology

• Strong implications for relative growth
  – Shared technology
  – Capital mobility
  – Labor mobility

Income convergence
Figure 3

State Manufacturing Employment

Percent Change of State Manufacturing Employment (from 1930 to 2004)

Relative 1930 Personal Income (Percent of Median State’s Per Capita Income)

Kentucky
West Virginia
Ohio
Pennsylvania
Average Relationship
Figure 2
Income Convergence

Standard Deviation of Real Per Capita Income (natural log)

Year
Convergence is evident.

You might be able to find patterns in the data, but there are many exceptions to most patterns.

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Newer growth theory models focus on the process of acquiring new technology.

Growth could vary more permanently:
- Human capital
- Taxes and public infrastructure
- Research and development
STATE RELATIVE INCOME, 2004

Percent above or below state average
LONG-TERM RESEARCH PROJECT

• State Growth Empirics, by Paul Bauer, Scott Shane and myself
• Research looks for underlying patterns in relative income changes
• Need data on potentially relevant state differences
  – Human capital
    • Education
  – Taxes and infrastructure
    • Per capita state revenues and road expenditures
  – Innovation
    • Patents per capita
  – Industry structure
    • Share of income by industry
LONG-TERM RESEARCH PROJECT

• Income is estimated to be function of
  – Past income levels
    • Help to account for unobserved elements like the existing capital stock
  – Other factors
    • Education
    • Innovation
    • Industry structure
    • Climate was marginal
    • Taxes, road spending, banking assets, and business dynamics are not associated with income growth
Not exact, but the pattern is reproduced applying only state histories of these variables.

Ordering largely preserved.

Scale of total three predictions large (~70% of overall variation).

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PREDICTED IMPACT OF KEY FIGURES ON 2004 STATE INCOMES

- Patent data is largest explanatory variable
- Education also important in explaining differences
- Industry structure smaller and less reliable
LESSONS FOR THE STATES

• We do not study specific policies that might be implemented and thus have no specific recommendations.

• However, it is evident that over a span of 75 years the most reliable indicators of relative income levels and growth are knowledge variables.

• Economic development efforts should not ignore either education or innovation.
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