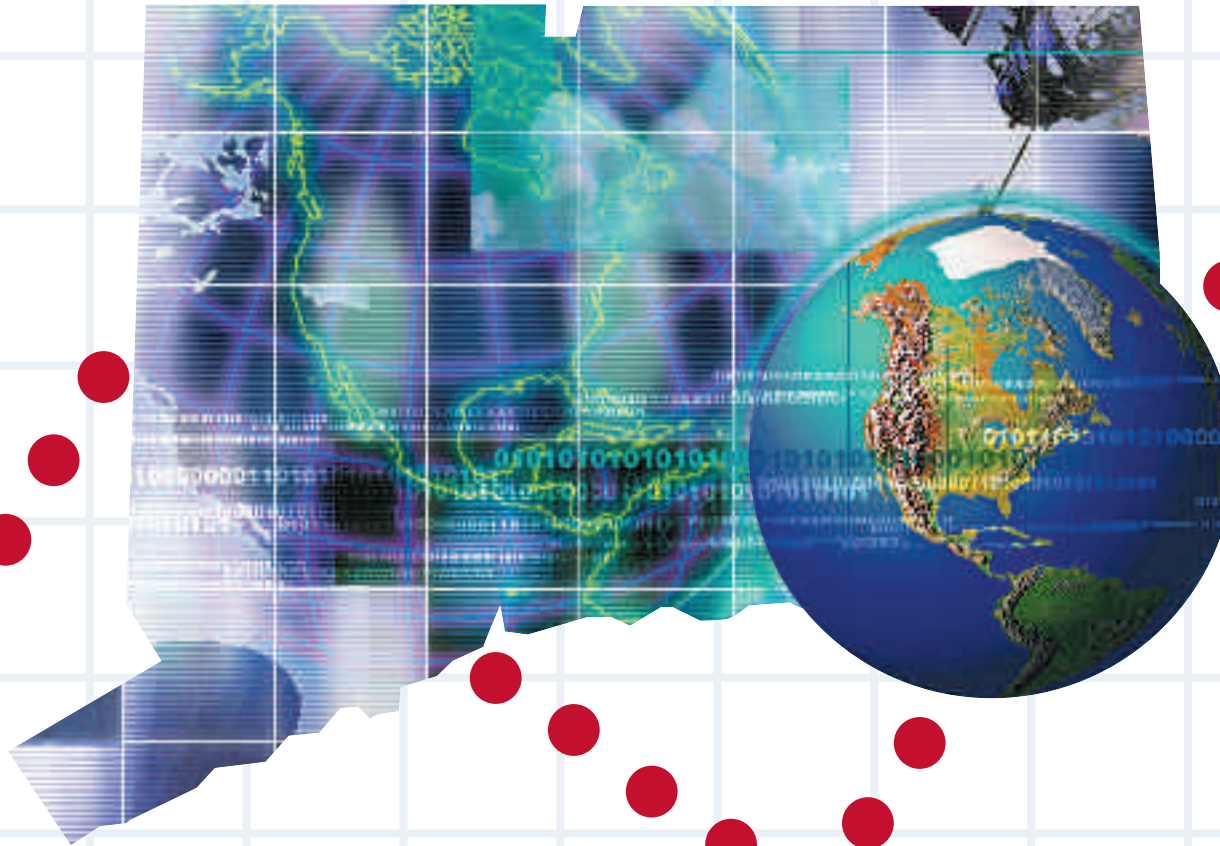


BENCHMARKING CONNECTICUT 2006: DETERMINANTS OF ECONOMIC GROWTH

OVERVIEW



The full report is available online at www.cerc.com/benchmarks

This report was prepared by the Connecticut Economic Resource Center, Inc. with contributions and insights from the New England Public Policy Center at the Federal Reserve Bank of Boston, the Connecticut Department of Labor - Office of Research, and the University of Connecticut - Center for Economic Analysis.

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BENCHMARKING CONNECTICUT 2006: DETERMINANTS OF ECONOMIC GROWTH

OVERVIEW

THIS SUMMARY PRESENTS THE KEY FINDINGS FROM THE 2006 EDITION OF THE *CONNECTICUT BENCHMARKS* REPORT—A REPORT THAT IDENTIFIES SOME OF THE FORCES IMPACTING ECONOMIC GROWTH IN CONNECTICUT, AND RECOMMENDS FIVE PRIORITY AREAS FOR SUSTAINABLE GROWTH.

WHY ECONOMIC GROWTH IS IMPORTANT

Economic growth is essential to continuously improve the overall opportunity, prosperity and quality of life of people in any jurisdiction. Growth fosters greater opportunity for current and succeeding generations by promoting a rising standard of living. Growth drives changes in the economy, creating new products and firms and leading to countless innovations. It provides a basis for businesses to start and expand and for enabling public revenue to keep pace with growing demands for services. Widely shared economic growth is imperative for Connecticut's future economic vitality and quality of life.

Economic growth is measured by multiple sets of metrics. Conventional metrics, including state gross domestic product (GDP), income growth and job growth, explain only part of the growth puzzle. Other metrics that must be considered include income distribution, human capital, demographic shifts, foreign investment and entrepreneurial activity. Growth is too complex a concept to be measured by any single indicator; a broad array of interdependent variables needs to be analyzed.

The goal of the Benchmarking Connecticut 2006 initiative is to achieve greater understanding of and insights into the key components of economic growth in the state and in this region of the country.

DETERMINANTS OF ECONOMIC GROWTH: SITUATION ANALYSIS

Explanations for and assumptions about economic growth that seemed reasonable even 10 years ago no longer hold up in a global, knowledge-based economy that operates 24 hours a day, 7 days a week, 365 days a year.

This study identifies and analyzes three major areas that influence economic growth in Connecticut:

- External forces (global, national, technology)
- Regional and state trends
 - Job growth
 - Demographic shifts
 - Business growth
- Urban markets

These areas should not be considered in isolation. Each is inextricably linked to the others, and the relationships among them are complex. Understanding these elements and their relationships and approaching them holistically is essential to developing effective strategies for promoting economic growth.

PRIORITIES FOR SUSTAINABLE GROWTH

Connecticut's current situation with regard to growth is described in this research and in the work of others. Based on those findings, Connecticut must address five critical areas in order to create a sustainable economic future for the state and its people:

- Globally competitive education and training;
- Dynamic vibrant cities;
- Quality affordable housing;
- Integrated, cost-effective transportation infrastructure; and
- Growth in business investments.

DETERMINANT #1: EXTERNAL FORCES

Numerous forces at the global, national and regional levels, as well as changes in technology, are increasingly having an impact on Connecticut's economy. More importantly, these forces will affect what conditions in the state will be 10 or 20 years from now. These large forces play a much greater role in our economic fortunes than most people imagine. For example, one source estimates that 93 percent of job growth in Connecticut is controlled by national job growth.¹ The size of Connecticut's economy in a global context limits the state's ability to influence its future. From a global perspective, if the world's total production or value added was set at \$1 million, Connecticut's share would be \$4,365,² underscoring the need to understand the magnitude and complexities of global markets.

Connecticut's current position and recent history are similar to most other states in the Rust Belt, that group of contiguous states that includes the Northeast and Great Lakes. These states share a similar economic history, are at relatively the same points in their economic life cycles and are facing similar economic challenges with respect to job and business growth and demographic change.

NATIONAL POLICIES

In addition to this strong regional influence, states are subject to policy decisions set at the federal level in areas from education to research and development (R&D) funding to trade and monetary policies. Decisions made in Washington can have widely varying impacts on different states, often with little state participation in these discussions and outcomes. For example, unfunded federal mandates compete with other priorities for state investment.

EFFECTS ON INCOME AND PRODUCTIVITY

Income and productivity are two economic measures that reveal some of the impacts of external forces on the regional and state economies. These

external forces include technology, changes in industry structure, the size of the global economy, changes to national policies, and other national and regional factors. Historically, companies in the state (many of them major manufacturing companies with strong exports) were characterized by being at the forefront of applying technology to increase their productivity. This strategy allowed them to remain competitive and resulted in the state's high productivity, traditionally reflected in high wages. The state's strong mix of competitive companies and highly skilled workers in productive industries has placed Connecticut at the top of the ranks among states in terms of productivity and per capita income.

But high incomes also feed back into the state's economy—increasing over time relative costs for households and businesses. These costs are captured in the labor bill faced by businesses in the state, thus creating trade-offs. There are trade-offs between income growth and employment growth. CERC's research suggests that each \$1,000 increase in state per capita income in 1990 resulted in a one percent lower growth rate in employment in that state between 1990 and 2000. This result links the cost of hiring and keeping workers in the state with higher per capita incomes. Likewise, Moody's Economy.com Cost of Doing Business Index indicates that 75 percent of the weight is explained by the cost of labor.³

In addition, recent strong global pressures resulting from the growth of newly developing economies, especially China and India, and from further technological advances, have significantly reduced the cost of production outside of the U.S. These developments have encouraged a shift in production to areas of the world with lower costs than Connecticut, the Northeast and the rest of the nation. This shift in production is reflected in the outsourcing of jobs that were based in Connecticut, the outsourcing of contracts for components that were once manufactured in Connecticut, and the purchasing of relatively inexpensive imported consumer goods. These pressures were initially felt in manufacturing industries, where low skill

1 Moody's Economy.com, Connecticut Precis, May 2006.

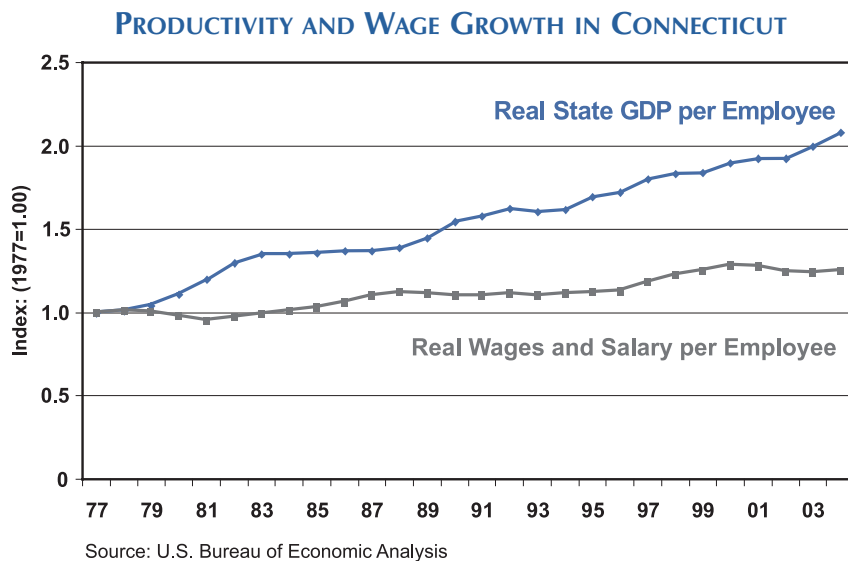
2 The World Bank, <http://siteresources.worldbank.org/DATASTATISTICS/Resources/GDP.pdf>; and U.S. Bureau of Economic Analysis.

3 Moody's Economy.com index explains 20 percent of employment growth in the states. This weighted index has three components: 75 percent for labor, 15 percent for energy and 10 percent for taxes.

levels made exporting production relatively easy. Increasingly these pressures are also being felt in professional and technical service industries (such as call centers, accounting, radiology and other services) that have relatively high labor costs and work that can easily be digitized and exported. For example, X-rays can be digitally transferred and analyzed anywhere in the world.

CHANGING ECONOMIC REALITY

One of the important results of these changes on Connecticut's economy is the increase in the gap between worker productivity and worker wages.



The growth in inflation-adjusted wages since 1977 for Connecticut was 25 percent; however, the growth in inflation-adjusted productivity for the state was slightly over 100 percent during the same time. The growth in this gap is due, in part, to the response of a dynamic economy as companies in various industries move in and out of the state, and as companies invest in the latest technology, using computers and automation to reduce employment and thus remain competitive. These structural changes call

into question the standard economic paradigm that growth in worker productivity automatically translates into increases in worker wages.

Although some of these forces are clearly recent and due to advances in technology and communication networks, technological change has been increasingly present as a factor associated with jobs in Connecticut's economy since around 1950. In 1948, nearly 56 percent of the state's total employment was in manufacturing. Acquiring a manufacturing job then did not require advanced training but rather a strong back and a willingness to work for wages. And the wages for those workers were relatively high, making middle class living a reality for over 400,000 manufacturing employees and their families. Today, there are fewer than 200,000 employees in manufacturing, accounting for less than 12 percent of the workforce.⁴ When available, new jobs in manufacturing often require training and expertise well beyond a high school degree. The changing character of manufacturing jobs due to technological innovations and movement to lower-cost locations from urban areas that were once manufacturing centers is a factor that discourages business investment and job growth.

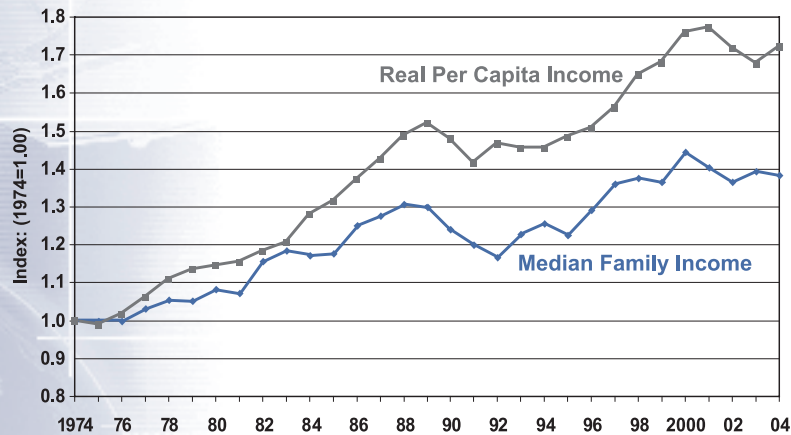
THE IMPACTS FROM CHANGES IN INCOME DISTRIBUTION

One important issue directly associated with the shifts in production is the effect of these shifts on personal income in the state and across the nation. At the most basic level these shifts have also resulted in changes in productivity that have reduced overall labor costs. Within this environment, however, companies that are successful have been able to increase their profitability, which has resulted in higher returns to the managers, owners and stockholders.

Although there are many ways to measure the data associated with this issue, the growing gap between median and average incomes as shown for Connecticut captures a number of factors associated with this trend. These include a business cycle component (troughs after the peaks in 1989 and 2001), the recent (since 2001) decline in both per capita and median family incomes, and the fact that the gap is not recent and has been increasing over time.

4 U.S. Bureau of Labor Statistics.

GROWTH INDEX: CONNECTICUT'S PER CAPITA AND MEDIAN FAMILY INCOME



Source: U.S. Census Bureau and Bureau of Economic Analysis

This growing gap is especially evident between certain Connecticut cities and the rest of the state. Bridgeport, East Hartford, Hartford, New Britain, New London, New Haven, Waterbury and Windham had the lowest incomes in the state in 2001 and had the lowest growth in income between 1991 and 2001 of any of the cities and towns in the state. These eight cities had on average an adjusted gross income in 2001 of \$33,030 per return and had on average a loss in real income between 1991 and 2001 of \$834. The remaining cities and towns in the state had an average income of \$69,817 and growth in real income of \$17,111.⁵ These results suggest that this gap in income is not equally distributed across the state but that low incomes are concentrated in the cities and became lower during the growth of the “new economy” in the 1990s. The overall impact of these changes is not captured in any single metric but is visible in the lack of economic vitality in those cities. Some of the clearest impacts are seen in areas such as affordability of housing⁶ and education, particularly early childhood and post-secondary.⁷ These factors are critical in creating and enhancing an environment conducive for economic growth.

⁵ Internal Revenue Service, Statistics of Income. Income as measured by adjusted gross income per return.

⁶ Alicia Sasser, Bo Zhao and Darcy Rollins, *The Lack of Affordable Housing in New England: How Big a Problem? Why Is It Growing? What are We Doing About It?* presented at: “Housing and the Economy: Trends, Impacts and Potential Responses”, May 22, 2006, New England Public Policy Center, Federal Reserve Bank of Boston.

⁷ Connecticut Center for Economic Analysis, University of Connecticut, *The Economic Impact and Profile of Connecticut's ECE Industry*, <http://ccea.uconn.edu/studies/Child%20Care%20Report.pdf>; Committee for Economic Development, *The Economic Promise of Investing in High-Quality Preschool*, 2006, http://www.ced.org/docs/report/report_prek_econpromise.pdf.

⁸ Except between 1950-1959 when the Midwest outperformed the South.

DETERMINANT #2: REGIONAL AND STATE TRENDS

This section highlights three significant, interdependent trends—job, business and population growth—that are impacting Connecticut and the Northeast. Although it is difficult to isolate cause and effect among these three variables, they move in unison, and the patterns of change are the same across most states in the Northeast. The impact of these regional trends is profound and far-reaching.

DETERMINANT 2A. JOB GROWTH

Job growth in the Northeastern and Midwestern states has lagged the other regions for decades. The Northeast has been underperforming the nation for more than 50 years. Connecticut started slipping from the national pace during the 1970s, and since 1990, Connecticut's growth rate shifted significantly from the U.S., as seen in the table. Like the Northeast and Midwest, Connecticut had declines in employment in average annual growth rate terms between 2000 and 2005, while the South and West made gains. The South and West have consistently outperformed the Northeast and Midwest.⁸

AVERAGE ANNUAL EMPLOYMENT GROWTH RATES (%)

	U.S.	Northeast	Midwest	South	West	Connecticut
1950-59	2.4	0.9	3.1	2.7	4.1	1.8
1960-69	3.0	2.0	2.7	3.9	3.8	3.0
1970-79	2.8	1.0	2.2	4.0	4.3	1.7
1980-89	2.0	1.6	1.3	2.4	2.4	1.7
1990-99	1.8	0.7	1.8	2.4	2.2	0.3
2000-05	0.3	-0.1	-0.4	0.6	0.9	-0.4

Source: U.S. Bureau of Labor Statistics

Between 1989 and 2005, the U.S. has seen a 24 percent increase in jobs, while the state has slipped by 0.2 percent. While this lack of job growth is clearly a problem, lackluster employment growth is a regional problem. Connecticut

has seen some recent growth: between 2003 and 2005, the number of jobs in the state increased by 20,000 from 1.643 million to 1.663 million. However, this level is still lower than the employment peaks in 1989 and 2000.⁹

Overall, the employment growth rate in Connecticut has been below that of the nation. Factors in the state and the region hinder the ability of the state to perform at national levels. If Connecticut's industries had grown at the same rate as the nation between 1989 and 2005, the state would have had an employment growth rate of more than 20 percent.¹⁰ In reality, job growth declined slightly.¹¹

Changes in the state's industry mix affect the type and quality of available jobs. According to *The State of Working Connecticut 2006*, the industry sectors with the largest employment declines between 2004 and 2005 were primarily manufacturing and professional services. The industry sectors with the largest job increases were service-related. For the five sectors showing the biggest declines, the average 2005 wage was more than \$63,000 versus almost \$36,000 for jobs in the sectors with the most growth.¹²

Housing

Housing affordability is a factor in attracting and retaining workers in the area. Many areas of the nation have experienced housing price appreciation, and Connecticut is no exception. Median values of housing units in 2005 were greater than \$200,000 in all of the counties in Connecticut. The median value of housing units in Fairfield County was almost seven times its median household income. Tolland County had the lowest ratio of housing value to income, at just over three. In terms of median monthly costs for homeowners as a percent of household income, all counties were above 20 percent. But for renters, the share of median gross rent to income was

higher, with three counties approaching 30 percent and New Haven County approaching 32 percent.¹³ Spending 30 percent of income on housing is generally accepted as the limit for housing affordability; a number of areas in Connecticut are approaching or have reached that threshold, making it difficult for young professionals and middle-income families to afford housing near employment locations.

Connecticut's affordable housing shortage is exacerbated by the way in which education is funded. Local property taxes provide the base for education. Currently, educational expenditures account for 60 to 70 percent of most municipal budgets. To control these costs, municipalities are taking steps to manage student enrollments by limiting certain housing development. The shortage of affordable housing, coupled with flat job growth, discourages young professionals and families from locating in the state and is driving them to other parts of the country. As recent research about Connecticut notes:

[The] housing shortage hampers the economy in some parts of the state. Employees can't find housing they can afford, so companies have trouble recruiting employees from other places. Further, businesses that consider relocating to Connecticut decide not to, because housing is too scarce and expensive.¹⁴

Transportation

Transportation facilitates economic efficiencies of a region, reducing the costs to businesses and to commuters. The average commute time per worker has increased in Connecticut between 1990 and 2000.¹⁵ The state has also seen increasing commuter costs through delays. For example, one recent study that looked at the change between 1982 and 2003 in the number of hours a road traveler was delayed ranked the Bridgeport-Stamford area 31st worst overall and 7th among cities of similar size.¹⁶

9 Connecticut Department of Labor, Office of Research.

10 Moody's Economy.com; Calculations by CERC.

11 Ibid.

12 Connecticut Voices for Children, *The State of Working Connecticut, 2006*, http://www.ctkidslink.org/pub_detail_308.html.

13 U.S. Census, American Community Survey.

14 Partnership for Strong Communities, http://www.ctpartnershiphousing.com/index.php?option=com_content&task=section&id=6&Itemid=43.

15 U.S. Census.

16 Shrank, D. and Tim Lomax, *The 2005 Urban Mobility Report*, Texas Transportation Institute, *The Texas A&M System*, 2005, <http://mobility.tamuedu/ums/report/>. Rank out of 85 metro areas.

Entrepreneurial Climate

Connecticut ranked 48th among the best states for entrepreneurs in 2006, down from 43rd in 2005. In 2006, the Hartford metropolitan area ranked 50th out of the 50 largest metros that are best for entrepreneurs.¹⁷ Data from surveys conducted¹⁸ of citizens, business executives (U.S. and international) and national site selection consultants found that “New England is perceived as ‘old and cold’-and no longer viewed as a major competitive threat by other parts of the United States.”¹⁹

Relatively weak business vitality in Connecticut also dampens the spirits of potential workers. An area with higher business churn sees more companies start and stop operations. This “creative destruction,” a term first used by Joseph Schumpeter in the 1940s, is critical in building a culture of innovation. Relative to other states, Connecticut has slow business churn.²⁰ When business churn is low, fewer innovative companies are being created in the area, and potential workers are lured away to other areas. Of course, larger companies can be sources of innovation and lucrative positions for new workers, but the excitement of entrepreneurship is an attraction for workers, especially younger professionals.

Other Supply Issues

International pressures play a role in the supply of workers as well, since Connecticut, like all states, participates in a global labor market. The state has witnessed the out-migration of high-skilled jobs abroad for at least a decade. In addition, the outsourcing of jobs and production has placed downward pressures on job growth in the state. However, estimates of job losses are difficult to calculate, as is the potential for offshoring to bring job gains.²¹ So international issues are affecting job growth in the state and the region, but the degree is unclear.

Related to the supply of workers, there is a mismatch between the skills

current workers and future workers can offer companies, and the skills companies are seeking. The skills mismatch is discussed further in the demographics section.

Productivity

Another issue affecting the demand for workers is productivity; as productivity increases, demand for workers frequently declines. Productivity increases can be caused by international pressures, which decrease the costs of producing items, and by technological advances at home or abroad. It is interesting to note that productivity and employment can both increase at the same time, although in advanced economies it is likely for one to improve while the other declines.

In addition to technology and international pressures, changing consumer preferences and industry shifts in the economy create a set of industries that are growing and need employees, as well as industries that are fading and shedding jobs. Consumers’ increasing demands for personal services and recreation also cause shifts in the industries that are growing and fading. For workers who lose jobs in declining industries, there can be skills mismatch issues when trying to find alternative employment. And if businesses cannot find the appropriate workers in this state, the companies may move, looking for greener pastures.

Regression Analysis Results

The discussion to this point has identified a number of factors that impact business and employment growth in a region and focused on what has influenced these factors in Connecticut. As noted earlier, these factors all interact with each other in a state’s economy. To better understand the influences of these factors on employment growth, a multiple regression model was developed. Using data measurements for 50 states, the analysis

17 Entrepreneur and NPRC’s 2006 Hot Cities for Entrepreneurs, <http://www.entrepreneur.com/bestcities/region/states.html>.

18 Surveys conducted by the University of Connecticut’s Center for Survey Research and Analysis.

19 Douglas G. Fisher, *Old and Cold?* Connection: New England’s Journal of Higher Education, Fall 2004, http://findarticles.com/p/articles/mi_qa3895/is_200410/ai_n9454370.

20 U.S. Small Business Administration, Small Business Economic Indicators, <http://www.sba.gov/advo/stats>; Calculations by CERC.

21 Center for American Progress, *Offshoring By the Numbers*, 5/21/04.

shows that the following variables explain about half of a state's employment growth between 1989 and 2005:

- Ratio of Business Failures to Business Starts, 1990 (negative correlation):

When businesses are failing at a faster pace than starting up, it can be assumed that there are adverse effects on a state's employment growth. This regression model showed that, on average, a state with a high ratio of business failures to starts had relatively slower job growth.

- Share of Population Age 25-34 Years Old, 1990 (positive correlation):

This age group is generally innovative and an available source of workers and talent. This model suggests that states with larger shares of this age group have stronger job growth.

- Share of Income Held by Bottom Fifth of Households, 1988-90 (positive correlation):

This result suggests that as the share of income held by the bottom 20 percent of households increases, so does job growth during 1989 and 2005.

- Average Annual Pay, 1990 (negative correlation):

The model suggests, on average, that states with higher average annual pay in 1990 have lower job growth than their lower-paid counterparts. This result is consistent with convergence theory, in which businesses locate in lower-wage areas and people locate to find jobs.

- Hypothetical Employment Growth, 1989-2005 (positive correlation):

This variable is based on industry mix. If a state's hypothetical growth, which is based on the growth patterns at the national level by industry, is positive, then actual job growth will also be positive.

- Unemployment Rate, 1989 (positive correlation):

This result shows that an area with a higher unemployment rate in 1989 saw higher job growth between 1989 and 2005. This suggests that areas with higher unemployment rates have larger pools of available workers.

The results of the regression analysis attest to the complexity of the relationships between the various factors impacting economic growth.

DETERMINANT 2B. DEMOGRAPHIC SHIFTS

Although Connecticut still has a highly-educated workforce, and arguably one of the most productive economies in the world, there are fundamental issues pertaining to human capital that will impact our long-term economic growth. According to recently published research, these impacts will become more pronounced over the next 10 to 20 years. Included among the areas of concern are:

- Slow population growth
- Aging population
- Declining younger worker cohort
- Net exporter of college freshmen
- Out-migration of young professionals
- Changing skill mix
- Science, technology, engineering, math (STEM) pipeline
- Relative educational attainment

Slow Population Growth

Like most other states in the Northeastern and Great Lakes regions of the country, Connecticut's population growth over the past several decades has been much slower than the national average. Whether one believes that population follows jobs or that jobs follow population, it is clear that these two variables march in a very tight cadence. In Connecticut over the past quarter-century, job growth has followed population growth with a lag of three years.²² That is, on average a positive employment response is seen about three years after a population increase. The data for Connecticut suggest that without population growth we cannot expect much job growth. The implications of slow population growth are manifold and extend to workforce availability, new family formation, new housing starts, tax revenue growth, demand for public services and more.

Access to a sufficient supply of skilled labor is essential to the ability of a regional economy to grow jobs and income and reduce poverty. A shortage of skilled workers is a significant speed bump in the overall competitiveness of any regional economy. A flat or declining rate of labor force participation compounds the slow population growth problem, which is the case in Connecticut.²³ Declining labor force participation coupled with slow population growth comprises a powerful one-two punch that effectively removes most of the vitality from the Connecticut job market.

Aging Population

Adding to our demographic challenges is the fact that Connecticut has the eighth oldest median age of any state in the country, at 39.3 years (very close to Florida with a median age of 39.5). Again, Connecticut is not unique in this regard. Six of the 10 oldest states are found in this region of the country as are 13 of the 20 oldest. Through natural demographic change and out-migration of younger workers to faster growing regions, Connecticut and most of the other states in this quadrant are “graying” much more quickly than states in the South and West. Utah, for example, has a median age of 29.3 years, fully 10 years younger than Connecticut.²⁴ When businesses wish to expand or entrepreneurs are starting up new firms, they are likely to look to those regions with a skilled, younger workforce.

Declining Younger Population Cohort

As Connecticut’s population ages, there is a deficit in the younger age groups. Between 1990 and 2000 Connecticut had the largest relative shrinkage in the 18-34 year age cohort of any state in the nation. The state had a 23 percent decline in this age group, equating to a loss of more than 200,000 individuals.²⁵ This is a critical cohort of individuals who are completing their education, embarking on their careers and establishing

families. The loss impacts businesses as they seek new entry-level workers or cope with declining sales of building materials, appliances, cars and other products associated with new families and young adults. In the section of this report dealing with job growth, there is a strong statistical correlation between the relative size of the 25-34 age cohort and overall job growth. The greater the overall share of this cohort, the greater the job growth. Connecticut, with the greatest relative decline of any state in the nation, is at a significant disadvantage, one that has been manifested in sluggish to nonexistent job growth.

Net Exporter of College Freshmen

Although the situation in Connecticut has improved steadily since 1992, every year the state exports more college freshmen than it imports. In 2004, the latest year for which data are available, the difference between out-of-state students enrolling as freshmen in Connecticut (8,118) and state residents enrolling as freshmen in other states (10,449) was -2,331. This is down considerably from 1992 when the deficit was -4,617.²⁶ Given that college freshmen tend to settle in the area where they attend school, most of these lost freshmen are not expected to return to Connecticut, but rather to begin their careers and start their families elsewhere.

Out-Migration of Young Professionals

The impacts of an aging, slow-growing population are further exacerbated by the slow, steady attrition of young, college-educated professionals leaving for other areas of the country that provide more economic opportunity. Within the past few years reports from the Census Bureau²⁷ and the National Science Foundation²⁸ have documented Connecticut’s loss of young professionals and engineers. Again, this trend is echoed regionally and is heavily influenced by the lack of affordable housing in the region

²³ Connecticut Department of Labor, Office of Research.

²⁴ U.S. Census.

²⁵ U.S. Census; Calculations by CERC.

²⁶ Connecticut Department of Higher Education.

²⁷ U.S. Census, *Migration of the Young, Single, and College Educated: 1995 to 2000*, <http://www.census.gov/prod/2003pubs/censr-12.pdf>.

²⁸ Basmat Parsad and Lucinda Gray, *Interstate Migration Patterns of Recent Recipients of Bachelor’s and Master’s Degrees in Science and Engineering, Special Report*, National Science Foundation, August 2005, <http://nsf.gov/statistics/nsf05318/pdf/front.pdf>.

as well as slow to no job growth. The steady loss of young professionals results in increasing concentrations of those without the skills or resources to move elsewhere.²⁹

Changing Skill Mix

Like many other industrial cities in the Northeast, test scores in Connecticut's urban schools signal serious skill gaps. On average around 6 percent of urban 10th graders pass all four sections of the Connecticut Mastery Test. Average SAT scores for Hartford and Bridgeport are less than 800 combined for math and verbal subtests. High school completion rates are as low as 50 percent for black and hispanic students.³⁰ These students, who represent almost half of tomorrow's workers, lack skills to compete in a traditional economy. This is especially problematic in a new, knowledge-based global economy. Connecticut's continued economic prosperity relies on the availability of a skilled, globally competitive work force. These future workers do not come close to that goal and, according to recently released reports, this weakening skill base will result in declining income and productivity by 2020.³¹

One report³² examines the changing ethnic and skill mix of a dozen states and projected those trends forward to the year 2020. The report forecasts that real personal income in Connecticut will decline 4 percent by the year 2020 due to declining skill levels of future workers.

In a second report,³³ the authors' estimation is that by 2020 each New England state will experience a decline in the fraction of its young population holding a bachelor's degree or higher. The primary demographic issue in this educational transition is the change in the region's minority

population. Both studies forecast a loss of human capital in Connecticut and the region.

STEM Pipeline

One of every two new jobs will require some level of post-secondary education or training.³⁴ The training needs are especially critical in the areas of science, technology, engineering and math (STEM)—particularly in the information technology (IT) area where seven of the 10 fastest growing jobs are found. STEM occupations are at the very core of the knowledge economy, an economy that thrives on continuous innovation and technical advances. Connecticut's long-term ability to compete successfully at a global level will be directly related to quality and rigor of STEM training at all education levels. In the near term, the availability and caliber of post-secondary education is essential to the growth of technology jobs and, therefore, regional and global competitiveness, particularly in the face of a coming worker shortage.

Relative Educational Attainment

Connecticut has always prided itself on its high level of college-educated adults. In 1990 the state was tied with Massachusetts as having the highest level of educational attainment among adults 25 years and older, approximately 27 percent. By the time of the 2000 Census the state's college attainment rate had risen to 31 percent. However, despite that improvement, Connecticut was no longer ranked first—it was now 6th, 7th if the District of Columbia were counted.³⁵ Our competitive advantage is eroding as other states get better, faster. According to studies³⁶ cited earlier, Connecticut can expect to see declining levels of college attainment over the next 10 to 15 years as a result of these trends.

29 U.S. Census, *Migration of the Young, Single, and College Educated: 1995 to 2000*, <http://www.census.gov/prod/2003pubs/censr-12.pdf>.

30 Connecticut Department of Education; Urban Institute, *Who Graduates? Who Doesn't? A Statistical Portrait of Public High School Graduation, Class of 2001*, February 2004, <http://www.all4ed.org/states2/Connecticut/>.

31 National Center for Public Policy and Higher Education, *Policy Alert: Income of U.S. workers Projected to Decline If Education Doesn't Improve*, November 2005; Coelen and Berger, *New England 2020: A Forecast of Educational Attainment and Its Implications for the Workforce of New England States*, 2006, www.nmefdn.org/uiimages/documents/NE_2020_FR.pdf.

32 National Center for Public Policy and Higher Education, *Policy Alert: Income of U.S. workers Projected to Decline If Education Doesn't Improve*, November 2005.

33 Coelen and Berger, *New England 2020: A Forecast of Educational Attainment and Its Implications for the Workforce of New England States*, 2006, www.nmefdn.org/uiimages/documents/NE_2020_FR.pdf.

34 Connecticut Department of Labor, *Connecticut Forecast 2014*, <http://www.ctdol.state.ct.us/lmi/misc/forecast.htm>.

35 U.S. Census; Calculations by CERC.

36 National Center for Public Policy and Higher Education, *Policy Alert: Income of U.S. workers Projected to Decline If Education Doesn't Improve*, November 2005; Coelen and Berger, *New England 2020: A Forecast of Educational Attainment and Its Implications for the Workforce of New England States*, 2006, www.nmefdn.org/uiimages/documents/NE_2020_FR.pdf.

DETERMINANT 2C. BUSINESS GROWTH

Why is it important for a state to maintain a vibrant business climate? A region that is home to growing startup companies and expanding larger companies provides employment opportunities for residents and enables them to secure their livelihoods. A vibrant business climate also attracts workers into the region to take advantage of the opportunities.

The relationship among business formation, job growth and population growth is remarkably strong. The states in this region of the country have experienced the slowest rates of both business formation and population of any region in the country. However, Connecticut is notable as the only state in the nation with negative business growth between 1989 and 2004.³⁷ Despite slow growth in the Northeast, most of the other states in the region are still eking out some growth while Connecticut continues to struggle to reach positive ground. Even though the state improved between 1998³⁸ and 2004, growth has been slow, ranking 47th among all states during this time. If cities and markets are not growing, the region is dormant, and there is little incentive for potential entrepreneurs to risk capital in establishing a business here. CERC's research found a strong regional effect in this metric as well; net new business formation in the Northeastern and Great Lakes states lags the national average.

Despite the overall rate of slow growth, a number of companies are thriving in Connecticut. For example, on the Deloitte Technology Fast 50, which is a list of the 50 fastest-growing technology companies in the state "based on five year [revenue] percentage growth,"³⁹ 17 of the 50 companies are in the manufacturing sector.

Technology Transfer

What are the ingredients that drive business vitality? One factor is technology transfer and commercialization from universities to area

companies. According to an Innovation Associates report to the Connecticut Technology Transfer and Commercialization Advisory Board of the Governor's Competitiveness Council,⁴⁰ some of the inputs that are useful for a successful technology transfer process include:

- research and development (R&D) resources;
- investment capital, particularly early-stage capital;
- scientific and engineering workforce; and
- entrepreneurial incentives and culture.

R&D Resources

Public and private R&D investments in basic and applied research can lead to the development of new products and processes, provided that the groundwork is in place to convert the research into goods for the market. New product development opens up additional markets for consumer and business products. Increasing productivity reduces business costs, enabling businesses to maintain or increase market share or increase workers' wages without increasing market prices. Productivity growth also can increase business revenues and profit growth, theoretically freeing up capital for R&D investments. Growth in worker wages stimulates increased consumer demand for new or improved products.

Investment Capital

Successful areas, in terms of entrepreneurs, have access to angel and seed capital, along with assistance in developing business plans and networking with potential investors.⁴¹

Scientific and Engineering Workforce

Connecticut has access to a good number of graduates in science and engineering fields. As a share of higher education degrees conferred, science

³⁷ U.S. Census Bureau, County Business Patterns; Calculations by CERC.

³⁸ Start year determined by availability of NAICS data.

³⁹ Deloitte, *Technology Fast 50 and Rising Star List*, http://www.public.deloitte.com/fast500/fast_50/search/company_search.asp.

⁴⁰ Innovation Associates, *A Report to the Connecticut Technology Transfer and Commercialization Advisory Board of the Governor's Competitiveness Council*, October 2004, <http://www.youbelonginct.com/pupload/techtransferweb.pdf>.

⁴¹ Edmund S. Phelps, *Understanding the Great Changes in the World: Gaining Ground and Losing Ground Since World War II*, *Capitalism and Society*, Vol. 1, Issue 2, 2006, The Berkeley Electronic Press, page 10.

and engineering disciplines make up about one-third.⁴² This is a substantial percentage, but Connecticut ranks only 17th among the 50 states. Connecticut attracts a number of foreign students. In terms of foreign students as a share of total enrollment, the state ranked 6th in 2004.⁴³ Access to graduates does not ensure they will remain in the region after graduation.

Business Costs

It is generally agreed that, all else being equal, high business costs have an adverse effect on business and job growth. States and regions always strive for lower costs in order to maintain a strong, competitive business base that provides jobs for residents and tax revenues for state and local government.

One of the most frequently cited sources of state and regional business cost measures is Moody's Economy.com Cost of Doing Business Index. This index, based on a weighted combination of labor, tax and energy costs, provides a useful base for comparing Connecticut over time and across states. The index explains about 20 percent of the variance in job growth among states over the long term (labor, energy and tax burden comprise the three components in this index).

The most recent edition of this index ranks Connecticut as having the 8th highest (most expensive) costs among the 50 states. Interestingly, eight of the 10 most expensive states are found in the Northeastern region of the country, a further affirmation of the regional nature of many of the challenges facing Connecticut. The report states that the "...list of highest cost states is dominated by the Northeast, which once again retains the distinction of being the costliest region in which to do business."⁴⁴

Since 1977 this source shows Connecticut has had one of the most stable and consistent cost structures of any state. If there is a positive side to high

business costs, it would be consistency and stability, traits which make business planning easier. Connecticut's business cost index has averaged about 6 percent above the U.S. average for the past 30 years.

Although it is important to be sensitive to business costs, they do not appear to be the primary driver of economic growth based on this research.

DETERMINANT #3: URBAN MARKETS

As an extensive body of published research has shown, prosperous regions depend on dynamic and vibrant cities. If cities are languishing due to high costs, out-migration of jobs and businesses and increasing poverty, it follows that not only are they not contributing to overall growth, they are consuming a disproportionate share of public resources and consequently increasing costs for all taxpayers. Perhaps of greater significance, the opportunity costs of under-performing and weak urban centers have a deleterious effect on any region's economic competitiveness and quality of life. As Jane Jacobs noted:

Whenever and wherever societies have flourished and prospered rather than stagnated and decayed, creative and workable cities have been at the core of the phenomenon...decaying cities, declining economies, and mounting social troubles travel together. The combination is not coincidental.⁴⁵

Bridgeport, Hartford and New Haven consistently appear among lists of the nation's poorest or most distressed cities. This situation has remained unchanged for decades, and by most signs the situation in these cities continues to deteriorate. In a study released in October 2006 by the Brookings Institute, Hartford is listed as the third most impoverished city in the nation along with Detroit and Newark,⁴⁶ despite its status as the capital of perhaps one of the most affluent jurisdictions in the world.

42 National Science Foundation; National Center for Education Statistics. Calculations by CERC.

43 Institute of International Education; National Center for Education Statistics. Calculations by CERC.

44 Moody's Economy.com, *North American Cost Review, 2005 Edition*, May 2006.

45 Jane Jacobs, *The Death and Life of Great American Cities*, 1961.

46 Kimberly Furdell and Hal Wolman, *Toward Understanding Urban Pathology: Creating a Typology of 'Weak Market' Cities*, Brookings Institution, 2006.

WEAK CITIES DRAIN RESOURCES

As discussed above, the condition of these three cities has had a pronounced impact on Connecticut's overall economic growth. More than 100,000 jobs have been lost from these urban centers over the past few decades. Since 1992, more than 1,800 businesses have either shut down or moved out of Bridgeport, Hartford or New Haven.⁴⁷ Compounding these trends, each of these cities has experienced a steady loss of population over the past 30 years,⁴⁸ although data analyzed by CERC suggests that New Haven may be improving.

The Brookings study⁴⁹ identified 65 cities, out of a pool of 302, that they described as "weak market cities" based on the economic conditions of the city and its residents. Approximately two-thirds of these 65 "weak market cities" are in the Rust Belt, including three in Connecticut. Of the three Connecticut cities, Hartford and New Haven are classified with Detroit, Saginaw and Flint, among others, as having the worst Residential Well-Being Index in the nation.

Instead of being net contributors to economic vitality and growth in Connecticut, these cities consume more than they contribute to the state coffers. Some of Connecticut's cities experience a cycle of poverty and dependency that affects opportunities for sustainable growth. Job and business losses combined with social service needs increase the financial burden on state and local government.

URBAN WORKFORCE LACKS SKILLS

Recent studies have demonstrated that up to one-half of all new workers in Connecticut will come from urban centers by the year 2020.⁵⁰ This cohort of future workers is characterized by extremely low academic skills as evidenced by test scores, high school graduation rates and other metrics. Studies suggest that because of the declining skill sets, inflation-adjusted personal income in Connecticut will decline 4 percent by 2020.⁵¹ As noted elsewhere in this report, demographic shifts have been especially pronounced in Connecticut over the past few years, particularly with respect to the 18-34 year age cohorts in which the state has experienced a 24 percent decline since 1990.⁵² Compounding this decline is the fact that under-skilled urban youth will represent an increasingly disproportionate share of these younger cohorts.

IMPOVERISHED CITIES PRECLUDE STATEWIDE GROWTH

As centers of job and business losses, impoverished and under-skilled populations, and disproportionate consumers of public services, our cities represent a large challenge to improving economic growth in Connecticut over the long term.

It is unlikely that the "city problem" will confine itself to the cities. Published research has shown that urban problems frequently spill over into first-ring suburbs.⁵³ There is already evidence of that in some of the communities abutting Hartford, Bridgeport and New Haven.⁵⁴

47 U.S. Census, County Business Patterns.

48 Kimberly Furdell and Hal Wolman, *Toward Understanding Urban Pathology: Creating a Typology of 'Weak Market' Cities*, Brookings Institution, 2006.

49 Ibid.

50 Coelen and Berger, *New England 2020: A Forecast of Educational Attainment and Its Implications for the Workforce of New England States*, 2006, www.nmefdn.org/uimages/documents/NE_2020_FR.pdf.

51 National Center for Public Policy and Higher Education, *Policy Alert: Income of U.S. workers Projected to Decline If Education Doesn't Improve*, November 2005; Coelen and Berger, *New England 2020: A Forecast of Educational Attainment and Its Implications for the Workforce of New England States*, 2006, www.nmefdn.org/uimages/documents/NE_2020_FR.pdf.

52 U.S. Census; Calculations by CERC.

53 Richard Voith, Federal Reserve Bank of Philadelphia, *Central City Decline: Regional or Neighborhood Solutions?* *Business Review*, March/April 1996, <http://www.phil.frb.org/files/br/brma96dv.html>.

54 CERC, *An Economic and Demographic Analysis of the Southern Connecticut Gas Service Territory*, April 2005.

PRIORITIES FOR SUSTAINABLE GROWTH

Sustainable growth is essential for Connecticut's long-term economic well-being. In light of the determinants reshaping Connecticut's economy — external forces, job growth, demographic shifts, business growth and urban markets — difficult choices must be made when prioritizing resources. Five critical areas must be addressed in order to sustain growth in the state:

Globally competitive education and training – Our current and future workforce requires “best of breed” pre-K through adult education and training, focused on meeting the needs of business in order to compete in a global economy. Science, technology, engineering and math (STEM) training and education must be emphasized.

Dynamic and vibrant cities – Strong cities are vital to regional growth. Dynamic urban centers encourage an influx of residents and businesses, driving investment, job creation, higher incomes and improved standard of living. Increased economic activity will result in greater tax revenues to support investments in education, infrastructure and public services.

Quality affordable housing – Affordable housing for middle-income families and young professionals is needed to both attract new workers and retain current workers. Availability of those workers is essential to businesses seeking employees and is a key component in building vibrant cities.

Integrated, cost-effective transportation infrastructure – Access to employment and recreation relies upon a cost-effective transportation network. The ability to efficiently move goods, provide services and connect to regional markets reduces costs for businesses.

Growth in business investments – A business climate rooted in innovation and R&D provides for the growth and expansion of business. Support for startups, business expansions, in-state, out-of-state and international investments will result in increased economic growth.

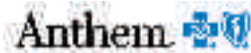
LOOKING AHEAD

Connecticut's future economic prosperity is less certain today than it has ever been. Traditional strategies that worked in the past must continue to be reshaped in light of a greater understanding of the factors that influence Connecticut's economic growth.

Even in this era of globalization, the state is not powerless to achieve positive change. In some cases, the state may act on its own. In others, regional collaboration will be required.

Without action, Connecticut's economic future will not resemble our economic past. Significant improvements in the five priority areas will result in an environment that will attract businesses, provide quality jobs and improve the standard of living for all residents.

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