

The Economic Impact of Tax Alternatives for New Hampshire

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The legislature and governor have been struggling to find a way to fund K-12 education since 1997, when the New Hampshire Supreme Court's *Claremont II* decision ruled that the existing system of financing K-12 education through the local property tax was unconstitutional. The legislature enacted a system of "adequate education grants" and a temporary funding plan in 1999 based largely on a statewide property tax. That plan was not fully funded when enacted, and is scheduled to expire in 2003.

On January 8, the New Hampshire public got its first look at the long-awaited report of Governor Jeanne Shaheen's blue ribbon tax commission (properly known as the New Hampshire Commission on Education Funding). The major charge of this commission, set up by executive order in April 2000, was to analyze "the economic impacts of various school funding revenue options" that would raise \$825 million in 2000. This dollar amount was the estimated cost for the state to fund what the legislature has defined as an adequate education.

Many New Hampshireites value the state's low tax status. At 8.1 percent of personal income, state and local taxes in New Hampshire are the lowest in the

* The views expressed herein do not necessarily reflect those of the Board of Directors of The Center or of Simmons College.

U.S. and about 80 percent of the U.S. average.¹ A further important distinction is that New Hampshire is the only state in the nation that has never enacted a broad-based sales or income tax. New Hampshire also has other important economic development advantages such as a very low crime rate, a highly educated labor force, and a business-friendly climate.² A heated debate is currently taking place regarding the potential impact of pressing tax choices on the New Hampshire economy. The major objective of this article is to summarize what the blue ribbon commission's report concludes about the impact of taxes on New Hampshire's economy.

State	General Sales Tax	Top Rate for Individual Income Tax
NEW HAMPSHIRE	n.a.	n.a.
Massachusetts	5 %	5 %
Maine	5	8.5
Vermont	5	9.5
Rhode Island	7	10.3
Connecticut	6	4.5
U.S. Average	5.2	6.8

The Tax Commission: Process...

Over several months, commissioners and researchers first set out a menu of criteria by which to judge tax options, and then evaluated a number of taxes

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Making Taxes Competitive in Rhode Island

by **Gary S. Sasse**
President
Rhode Island Public Expenditure Council

In the Spring of 1999, 372 Rhode Island business executives were asked what factors would have the greatest influence on business growth in the Ocean State. Both large and small business executives viewed Rhode Island's state and local tax burden to be a major obstacle to economic expansion.

This conclusion should not have been surprising given the geographic mobility of businesses, reflecting growing concerns about costs and quality of life issues. Indeed, as witnessed by tax programs adopted in a number of jurisdictions, state and local governments are becoming increasingly sensitive to the importance of moderate tax rates and other cost-related factors where government action can make a difference.

Maintaining a competitive tax climate starts with controlling the rate of growth in state and local government spending and striking an appropriate balance with the need to finance quality public services at a cost taxpayers can afford.

State and local governments play key roles in decisions regarding infrastructure, education and training, and help create a competitive business climate through both regulatory and tax policy. Economic development is clearly linked to the decisions made in the public arena. Economic competitiveness is strengthened if these decisions result in a stable

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against those criteria. Of the six criteria chosen, the ones that Chair David McLaughlin (Emeritus President, Dartmouth College) stated were most important are fairness, adequacy and stability, and competitiveness.

The commission began by examining a wide range of taxes, but soon narrowed its analysis to those taxes that could be considered the “heavy lifters,” that is, those that could alone, or with one other tax, raise a large proportion of their assigned revenue target of \$825 million. At that stage, such taxes as the cigarette tax, beer tax, and capital gains tax were set aside. The major taxes that the commission analyzed are the personal income tax, general sales tax, property tax, and value added tax (VAT). The commission also analyzed the legalization of video lottery terminals (slot machines) at resort hotels and racetracks, but because it found that net revenues from this source were likely to range from \$67 million to \$178 million, it is not considered one of the “heavy lifters.”

...and Findings

What did the commission conclude? It stated that, “if reasonably imposed, no one of these tax options would prove detrimental to New Hampshire’s economy or its social fabric. But too much dependence upon any single tax—or taxes that are too high—could risk economic harm.” In other words, the commission found that if “reasonably imposed,” New Hampshire should not worry about the impact of its choice of taxes on economic competitiveness, or the “New Hampshire advantage,” but should choose a tax on the basis of other criteria.

The commission’s single de facto recommendation was that the state should adopt a combination of taxes, and not a single tax. The tables on these pages can shed light on that recommendation. Table 1 shows top personal income tax rates and general sales tax rates for the neighboring New England states.

Table 3						
NH Combination Tax Options for Raising \$825 Million in 2000						
	Tax 1			Tax 2		
	Tax	Base	Rate	Tax	Base	Rate
First Option	Property	Usual	\$5 per \$1000	Income	AGI, Significant Exemptions	2.2%
Second Option	Property	Usual	\$5 per \$1000	Sales	Narrow Base	2.8%
Third Option	Income	AGI, Significant Exemptions	2.2%	VAT	Consumption-based	1.4%

Note, for example, that Massachusetts, Maine and Vermont all levy a general sales tax at a 5 percent rate. In Table 2, note that if used alone, a narrow-based general sales tax (the most politically palatable type of general sales tax) would have to be levied at a 6.6 percent rate to raise \$825 million. It is difficult to conceive that New Hampshire lawmakers would enact a sales tax with a higher rate than its neighbors.

Table 2		
NH Single Tax Options for Raising \$825 Million in 2000		
Tax	Base	Rate
Property	usual	\$10 per \$1000
Income	AGI, Significant Exemptions	4.4%
Sales	Narrow Base	6.6%
VAT	Consumption-based	2.8%

With respect to the income tax, a tax based on adjusted gross income (AGI), with significant exemptions to introduce some progressivity, would have to be levied at a 4.4 percent rate to raise \$825 million. This rate is uncomfortably close to Massachusetts’ newly enacted personal income tax rate of 5 percent.³

The statewide property tax rate, which is currently set at \$6.60 per \$1,000, would have to be raised to \$10 per \$1,000 if this were the sole revenue source. A consumption-based value added tax (VAT), which is similar to

the currently levied Business Enterprise Tax (BET), would have to be levied at a 2.8 percent rate. This may not sound high, but the current rate of the BET is 0.5 percent. A tax rate of 2.8 would essentially represent a more than 500 percent increase in the rate.

Table 3 shows the necessary tax rates for the three tax combinations that the commission describes.

Reaction to the Tax Commission’s Report

There has been considerable discussion of this tax commission’s report, including generous coverage by the media. Chair David McLaughlin has met with the president of the Senate and speaker of the House, and Governor Jeanne Shaheen has promised that she will release a tax

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Guest COLUMN

Nonprofits Revitalize Hartford Neighborhood



by **Eddie A. Perez**
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The nonprofit sector continues to evolve into one of Connecticut's engines of growth. Across New England, colleges and universities, hospitals, cultural and civic organizations play significant and growing roles in the local and regional economy. Increasingly, these institutions are key to the economic fortunes of their neighborhoods, host communities and states.

Historically, nonprofits have become spheres of influence in their communities by helping to stabilize decaying urban neighborhoods, providing cultural and tourist attractions that revitalize struggling central business districts, and assisting the private sector in recruiting, developing and retaining the workforce.

But as the size and contributions made by nonprofits continue to increase, they are taking on new roles as high-profile facilitators in urban areas. Around the country and in the Nutmeg State, the nonprofit sector is becoming a new source of leadership for economic and social growth that is based on combining vision, urgency, risk taking and private-public collaborations. In Los Angeles, Chicago, Atlanta, Philadelphia, Washington, D.C., Worcester, Massachusetts, and in New Haven, New London and Hartford, Connecticut, works in progress illustrate the beginning of a new paradigm that will cement the roles of nonprofits like universities and hospitals as growth engines.

Higher Education's Economic Impact

Even before the relatively recent commitment to become a greater force for revitalization in their communities, Connecticut's private higher education institutions were major factors in the economy. In 1996, Trinity, a small college of fewer than 2,000 students and under 600 employees, contributed \$127 million to the state's economy, including \$66.8 million to Hartford County. The \$127 million includes \$56.4 million in direct spending by the college in operating and capital costs as well as spending by students and campus visitors; and \$71 million in indirect spending in other sectors of the economy.

As a result of the economic activity generated by the college, 1,800 jobs were created or maintained in fiscal 1996. This includes 592 employees of the college as well as another 1,200 plus jobs generated or sustained in other economic sectors. Trinity's impact is just a small part of the overall economic impact of the independent (private) college sector on the Connecticut economy, estimated at \$3.5 billion in 1996, according to a study by the Connecticut Independent College and University Institute for Research and Public Service.

Revitalizing Hartford's South Side

The impact of Trinity on Hartford's economy in 1996, though significant, became much greater with the launch of the Trinity/SINA Neighborhood Initiative. In January 1996, the college and its partners in SINA (Southside Institutions Neighborhood Alliance) became a catalyst for development for its neighborhood, the city of Hartford and the capital region. The college and its partners (Hartford Hospital, the Institute for Living, Connecticut Children's Medical Center and Connecticut Public TV and Radio) committed the first \$10 million to leverage over \$175 million in total public and private investment to revive a struggling area. A five-year strategic plan was developed that required participation from, and benefits to, all sectors of the community.

In just four years, this initiative resulted in the design and construction of a \$110 million Learning Corridor campus encompassing a public middle school, a science and mathematics resource center, an interdistrict Montessori-style public elementary school, the Greater Hartford Academy of the Arts, and a Boys and Girls Club. Additional benefits include new housing, street beautification and employment programs. All told, the initiative has generated

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*Partnerships between colleges and communities are spurring economic growth.
Photos of Hartford skyline and Trinity College.*

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more than \$200 million of new investment in the community, including \$20 million from the SINA partners, surpassing its original goal.

The Learning Corridor project has produced many other community benefits. Initially, the consortium bought and renovated (for \$300,000) a former doctors' office building across from Hartford Hospital, turning it into a community job center training or employing over 300 persons annually. The center, now in its fourth year of operation, has attracted over \$1.5 million in funding from various agencies. As a result of the collaboration of the five non-profits, the city has also received a \$27 million Youth Opportunity grant from Washington.

The construction of the Learning Corridor campus employed 420 workers at its peak, 30 percent of whom were Hartford residents and 30 percent women/

minorities. The project also stimulated an estimated \$1.5 million in first year contacts for new vendors.

Working with the state, city, Fannie Mae, Local Initiative Support Corporation (LISC), and local community development corporations, SINA is building or renovating (at an average cost of less than \$200,000 per structure) some 50 two- and three-family homes in order to increase the share of owner-occupied housing stock in the area from 17 percent to 30 percent. Lastly, SINA has just announced, in collaboration with the city and the Spanish American Merchants Association, the creation of a special services district plan for the nearby Park Street area, the retail center for Hartford's Latino community.

Lessons Learned

The success of the Learning Corridor project demonstrates how large non-

profits, operating out of enlightened self-interest (after all, colleges and hospitals can't just pick up and leave), can revitalize blighted urban neighborhoods unable to attract traditional investment. The keys are leadership from all sectors including the community and government; cash and in-kind investment from nonprofit institutions (Trinity and Hartford Hospital, for example, tapped into their large endowment funds); financial support from government, corporations and foundations; and long-term commitments from all the partners to the success of the initiatives as well as accountability for them. Most of all, it took the vision and risk taking of the nonprofits to make this project work. ■

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proposal based on the commission's report in mid-February. Despite the report's conclusion, several newspaper articles and columns have stated that either enactment of an income or sales tax would be devastating for the New Hampshire economy. Nevertheless, the important question is whether the report informs and influences the solution to the education funding challenge finally enacted.

Meanwhile, an unexpected development has made the commission's report even more important. On January 17, Superior Court Judge Richard Galway ruled that the current statewide property tax, which now accounts for almost one-third of state taxes, is unconstitutional. The basis for this ruling is the poor quality of assessment data and practices in many of the local governments in the state. According to Judge

Galway, the expert witnesses concluded that, "bad data processed in a bad system leads to bad results."

Judge Galway further ruled that state property taxes collected since 1999 would have to be refunded. Given that the state was already facing a deficit, and the statewide property tax accounts for almost one-third of the state's total tax revenue, this is no easy requirement to satisfy. Until the governor appeals this decision, and the Supreme Court rules, the impact of Judge Galway's ruling is unclear. Already, however, it has cast a pall on school district budget meetings and school building proposals.

A further question regarding tax policy and New Hampshire's competitive position is raised by the judge's ruling. Does the uncertainty itself have a detrimental impact on the economic development prospects for the state?

Ultimately, it is up to the governor and legislature to decide, as informed by the views of the state's citizens. ■

NOTES:

- 1 Computed from *Statistical Abstract of the United States, 1999*.
- 2 Public Service of New Hampshire, *New Hampshire Economic Review*, October 2000.
- 3 In November, Massachusetts voters passed a measure that will lower the rate of Massachusetts' tax rate on wages from 5.85 to 5 percent over three years.

SOURCES:

Table 1. Research Institute of America, 2001 *All States Tax Handbook*. Note: the U.S. average includes only states levying that tax.

Tables 2 and 3. Author's Computations from Report of the New Hampshire Commission on Education Funding, January 8, 2001.

Power POINTS

Young Help on the Way

Though considered demographically challenged relative to young people, New England actually is not far behind the nation. Census data calculations by Morgan Quitno indicate that New Hampshire, Vermont and Maine all had higher proportions of population age 10-17 in 1999 than the U.S., while Connecticut and Rhode Island were slightly below average. Only Massachusetts, with 10.6% of population age 10-17, was significantly below the U.S. average of 11.5%. Moreover, in the period 1990-1999, all of the New England states had rapid growth rates for this age cohort, led by New Hampshire's 20.8%, Connecticut's 18.9%, and Rhode Island's 17%. The national percent change was 5.5%.

What We Owe

Several New England states have dangerously high levels of debt. Tax supported state debt, which includes debt guaranteed by general or special obligation bonds and revenue bonds, reached \$3,131 per capita in 1999 in Connecticut, \$2,436 in Massachusetts, \$1,670 in Rhode Island and \$953 in Vermont, according to Moody's. These amounts were 2-6 times greater than the U.S. median of \$505. Maine and New Hampshire were, respectively, just below or just above the U.S. median. Servicing such high levels of debt takes a big chunk of state budgets, crowding out spending for more productive uses.

Classifying Connecticut

The new North American Industry Classification System (NAICS) allows economic planners to more easily focus on critical state industry sectors. In Connecticut, for example, NAICS sectors having a much greater share of employment than the nation as a whole include Arts & Entertainment (and

casinos), Finance & Insurance and Educational Services. While insurance has traditionally been an economic driver in the state, the importance of the other industries had been masked under the old (SIC) classification scheme. With the new NAICS clarity, Utilities, Health Care and Information industries will also assume more significance to Connecticut policymakers.

Energy experts say there is little chance of a California-style deregulation energy crisis in New England because of the new power plants being built here and the long-term supply contracts many regional utilities have signed.

Innovative New England

Patents by inventors, the majority of patents issued by the U.S. Patent & Trademark Office, increased 68% in New England between 1990-99, slightly less than U.S. growth of 77% (data from *Economic Conditions in New Hampshire*). Growth rates were best in Vermont (164%) and New Hampshire (114%) and worst in Maine and Connecticut. The increase in patents in Vermont and New Hampshire is especially impressive because these states are building on a strong base. In 1999, Vermont ranked fourth and New Hampshire seventh nationally in patents issued (all kinds) per one million population. Massachusetts ranked second and Connecticut third in this innovation indicator.

Teacher Quality

Connecticut led the nation in a recent assessment of teacher quality by *Education Week*. To rank the states, data was compiled on more than 75 indicators, including teacher standards and accountability, programs to improve teacher quality, and the adequacy of resources provided for public schools. Connecticut had the highest overall score, 86, and was one of only four states given a grade of B. Connecticut was viewed by national experts as the "the gold standard for state efforts to recruit, select, and train teachers." In the survey, Massachusetts and Rhode Island each received a C, while Maine, New Hampshire and Vermont all got a D.

Keeping the Lights On

Energy experts say there is little chance of a California-style deregulation energy crisis in New England because of the new power plants being built here and the long-term supply contracts many regional utilities have signed. Prices may continue to trend higher, though, reflecting the underlying costs of natural gas or oil. ISO New England, the independent operator of the region's power grid, indicates that 1,400 megawatts of generating capacity have been added since mid-1999, with another 2,500 to 3,000 megawatts to be added by this summer. Additional power plants are proposed, though not all will be constructed. Currently, the New England power grid has a capacity of 27,400 megawatts.

One possible concern for the region is that almost all of the new power plants will be gas-fired, resulting in an overdependence on natural gas and raising the specter of rolling blackouts (or price spikes) due to supply shortages. Presently, New England relies on natural gas to generate about 15% of all its electricity, the rest from a mix of nuclear, hydro, coal and oil. By 2003, this share may be 50%. However, today's high gas prices have encouraged more exploration, which should produce additional supply in the next few years. ■

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fiscal environment, quality public services and performance-based government. A sound fiscal environment is characterized by responsible management through the efficient use of resources, ongoing evaluation of state and local government programs and agencies, and understanding the future implications of current decisions.

High-Quality Revenue System

Therefore, tax competitiveness must be viewed as part of the entire state and local revenue system that includes the entire range of resources generated to pay for public goods and services. Each state's unique demography, economic strengths and weaknesses, and political traditions influence tax policy. These and other factors have resulted in a core set of generally accepted principles of a high-quality revenue system.

Equity: Taxes should be fair and related to ability to pay. Similarly situated taxpayers should pay similar taxes.

Economic Competitiveness: Taxes should not impose burdens in such a way as to discourage economic activity within the jurisdiction.

Balance: The tax burden should be spread over a reasonable array of taxes in order to minimize the undesirable economic and behavioral effects of any given tax and to promote stability and adequacy in the tax system. Intergovernmental fiscal relations should also be considered.

Administrative Efficiency, Effectiveness and Fairness: Tax collection should impose as little cost as possible on both the taxing unit and the taxpayer.

Predictability: Revenue systems should produce resources in a reliable and predictable manner.

The competitive interests of all states are best served by the development of an equitable, economically competitive, balanced and accountable tax system. This may require the private and public sectors to develop and maintain a multi-year strategic tax program designed to

lessen the overall tax burden; ensure an appropriate balance between state and local taxes; reduce tax inequities among localities in the state; equitably and efficiently fund public services (particularly education); and improve the state's overall competitive position.

Ocean State Tax Strategies

In Rhode Island, the Rhode Island Public Expenditure Council organized a Tax Strategy Task Force to review Rhode Island's existing tax system and develop strategies to modernize the tax system to meet the needs of tomorrow's economy and improve Rhode Island's fiscal position.

The Task Force's principal finding was that Rhode Island's state and local tax system is out of balance for the reasons outlined below:

First, there is significant over-reliance on the property tax. Second, people with similar economic situations may have very different state and local tax burdens due to where they reside. Third, given the size of the state's economy, the overall tax burden in Rhode Island is high compared to other states. Furthermore, certain aspects of the state's business tax system may not foster job creation or be responsive to changing regional, national and international economic conditions.

With regard to the personal income tax, there appears to be a distributional imbalance between Rhode Island residents compared to similar taxpayers residing in other states. Upper-income Rhode Islanders bear a larger income tax burden than similarly situated households in neighboring states as well as other states across the country. At the same time, the income tax burden for lower- and middle-income households is less in Rhode Island than for similar taxpayers in the majority of states.

In short, the Task Force found that Rhode Island's tax system needs to be overhauled if the state is to play a role in expanding economic opportunities for its citizens and providing public services at a price citizens can afford. To address

this imbalance, RIPEC recommendations included:

- **Gain policy control:** Establish a personal income tax system that reflects the state's financial capabilities and its economic and social needs, shift the personal income tax from one based on Federal tax liability to one based on adjusted gross income.
- **Improve the state's economic competitiveness:** Eliminate the capital gains tax on assets held for six years or longer.
- **Reduce the property tax burden:** Continue the phase-out of motor vehicle and business inventory taxes.
- **Reduce the proportion of education funds derived from local property taxes:** Implement a new education finance formula and tighten the cap on local property tax growth.
- **Encourage economic growth and job creation:** Change the corporate income tax apportionment formula to increase the weight of sales and reduce the property and payroll ratios, and examine the manner by which the telecommunications industry should be taxed.
- **Maintain revenue balance:** Explore the feasibility of expanding the sales and use tax to a limited number of non-professional services; participate in the national discussion of e-commerce's impact on state revenues; and increase the cigarette tax from \$0.71 to \$1.00 per pack.
- **Maintain a high-quality revenue system:** Create a tax policy research office and establish permanent subcommittees on state and local tax policy within the General Assembly's House and Senate Finance Committees.

RIPEC forwards these recommendations as a way to achieve a better balanced, fairer and more equitable, accountable and competitive tax system for Rhode Island. In particular, the lack of balance among different taxes, and in some instances, the lack of balance within a particular tax, tends to cause inequities among taxpayers that may hinder the state's economic growth potential. ■

Regional Economic TRENDS

Greater Demand but Less Supply Undermines Pipeline of SEIT Workers in New England

by Michael B. Levin
Northeast Utilities

High-tech workers needed. This was the rallying cry of the late 1990s. The recent slowdown in the U.S. economy, however, coupled with the meltdown of high-flying dot-coms, may have put this story on hold.

But surely the pause is temporary, as the transformation from old to new economy continues apace. In the new old economy, as writer Jonathan Rauch labels it, knowledge is also king. Examining a quintessential "old" industry, the oil business, Rauch observes, "Knowledge, not petroleum, is becoming the critical resource in the oil business ... Geologists could not have found this prospect [a new well in the Gulf of Mexico] with the computer technology available even four or five years ago, and drillers could not have drilled it as efficiently with the technology available then ... In a number of respects ... the oil business has begun to behave more like the New Economy than the Old."¹

Since technological change is transforming the entire U.S. economy, highly-skilled, highly-educated workers will continue to be at a premium. This is especially true for New England, where the industry base is even more dependent on knowledge-based workers than the national economy. How will the region meet the demand for these workers in the future?

How Real Is the Tech Worker Shortage?

A Massachusetts Case Study

In some quarters the well-publicized shortage of high-tech workers is confirmation of the failure of American public education to adequately prepare all students for the workplace, especially students

in urban districts, women and minorities. Others, especially in labor and professional organizations representing technology employees, see the so-called shortage as a rationale for bringing in more foreign workers who then take the place of native-born workers and are more subject to manipulation by the companies.

In Massachusetts, at least, the issue has been studied with some rigor. In the Spring of 2000, Northeastern University's Center for Labor Market Studies and the Massachusetts Technology Collaborative (a quasi-public economic development organization) surveyed 310 technology-based companies with 45,000 employees about job vacancies. Similar surveys are planned for other New England states. The survey focused on the scarcity of scientific, engineering and information technology (SEIT) workers in Massachusetts; SEIT is a broad category encompassing Ph.D. scientists as well as computer and other technicians trained in vocational-technical programs, community colleges or specialized institutes.

The Northeastern University/Massachusetts Technology Collaborative survey found: 1) the job vacancy rate was more than 8 percent in key state technology clusters such as biotechnology; 2) certain occupations, especially computer scientists/programmers, have extreme shortages; 3) the larger problem for Massachusetts and most of the Northeast is slow population and labor force growth—most of the growth in the Massachusetts labor force has been due to foreign immigration (2000 Census data indicated faster population growth than expected, offering a glimmer of hope for the region); and, 4) the survey discovered that 7 percent of new hires in technology-based companies came from the H-1B program (foreign recruits), including one-third to one-half of life and physical scientists.

Job vacancy rates ranged from 5 percent for managers to 25 percent for web design developers; vacancies for electrical/computer engineers, physical and life scientists and computer scientists/programmers were all 10 percent or higher. More than 40 percent of all job vacancies were in computer scientist/

programmer and engineering positions because they represent a large number of jobs and have high vacancy rates. Conversely, web designers, a comparatively small pool, made up only 3 percent of total vacancies despite a 25 percent vacancy rate.

In most cases these job vacancy rates represented true labor shortages. "These labor supply problems are not primarily the result of high labor turnover, but rather the product of inadequate levels of skilled labor supply relative to the demands of employers."² One exception was for IT technicians, where new hires largely filled existing (vacant) positions, rather than staffing company expansions.

Regional Demand

Broader evidence of labor demand can be seen in data on the concentration of industries producing and using information technology in the New England states and differences within the region. Producing industries include computer, communications and electronic equipment manufacturing, communications and media, and computer and data processing services. Using industries include defense and engine manufacturing, drugs, financial services, and professional services, like engineering and research. Data from Economy.com on producers and users show a great concentration of these industries in three New England states.

Massachusetts had the highest share of employment in broadly defined IT industries in the nation in 1999: 15.2 percent of total employment. Connecticut ranked fifth at 13.3 percent and New Hampshire was sixth at 12.6 percent. Other New England states, Vermont (9.2%), Rhode Island (8.1%) and Maine (6.4%), were below the U.S. concentration of 10.2 percent. Thus in at least the first three states, IT workers will continue to be in short supply because of their importance to a wide range of industries, not just dot-coms.

Growing Your Own

Many public and private organizations are active in workforce development

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and, increasingly, are focusing on the nationwide problem of labor shortages in science and technology occupations. These organizations train and educate the emerging workforce but also retrain displaced workers from corporate restructurings and closings.

Regional employment boards oversee one-stop career centers offering comprehensive employment and training services in all states as part of the federal Workforce Investment Act. One of the act's priorities is retraining and placement services for dislocated workers from all types of companies, from Bradlees to Smith & Wesson in this region, to give two recent examples. Much of the training is in computer fields like programming, web site design and technical services due to the high demand for persons with these skills.

There is a new federal emphasis placed on programs to produce high-tech workers, especially from nontraditional populations, to address the need now filled by the H-1B visa program. In October 2000, the U.S. Labor Department announced another round of grants (totaling \$54 million) "to train

U.S. workers for high-tech jobs often filled by foreign workers." One of the grantees was the Metro North Workforce Investment Board in Northeastern Massachusetts, which received \$2.4 million for a two-year program to train 750 semi-skilled workers for electronics and telecommunications IT jobs with two large area employers, Lucent Technologies and Ametek Aerospace, and other firms in the region.

A more basic solution to the supply problem is a "grow your own strategy." At the state level, this equates to convincing more high-school graduates to attend in-state colleges. Because college graduates often take their first jobs in states where they attended college, these graduates represent an important pool of educated workers to fill available positions in high-tech companies. To stem this "brain drain" in Connecticut, for instance, legislators have proposed new scholarship programs for students pursuing higher education at public or private Connecticut colleges.

To address the chronic under-supply of scientists and engineers in the U.S., Paul Romer, a Stanford University

economist, recommends a \$1 billion federal program to pay schools that increase the number of science graduates and for fellowships to high-school students who go on to graduate science programs. While total bachelor's degrees awarded by American colleges and universities increased 18 percent between 1987 and 1997, there were 37 percent fewer degrees in computer science, 24 percent fewer in math, and 16 percent fewer in engineering. Graduate enrollments in science have increased but only because of foreign students. ■

NOTES:

- 1 Jonathan Rauch, "The New Old Economy: Oil, Computers, and the Reinvention of the Earth," *The Atlantic Monthly*, January 2001.
- 2 Paul Harrington and Neeta Fogg, "Labor Squeeze," New England Board of Higher Education, *Connection*, Fall 2000.

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