

Approved 2-9-87
Date

MINUTES OF THE SENATE COMMITTEE ON ECONOMIC DEVELOPMENT

The meeting was called to order by Senator Wint Winter, Jr. at
Chairperson

12.35 ~~am~~/p.m. on February 5, 1987 in room 123-S of the Capitol.

All members were present except: Senator Burke-Excused

Committee staff present:

Arden Ensley, Revisor of Statutes
Lynne Holt, Legislative Research Department
Mary Allen, Secretary to the Committee

Conferees appearing before the committee:

Dr. Charles Krider, Institute for Public Policy and Business Research, University of
Kansas

The meeting was called to order at 12:35 p.m. by the Chairman, Senator Wint Winter, Jr..

Senator Hayden moved that the minutes of the February 4, 1987, meeting of the Committee be approved. The motion was seconded by Senator D. Kerr. The motion carried.

Chairman Winter called on Dr. Charles Krider, Institute for Public Policy and Business Research, University of Kansas, to speak on the Stanford Research Institute (SRI) survey of state job growth capacity. Dr. Krider called the attention of the Committee to the Grant Thornton report on General Manufacturing Climates of the Forty-eight Contiguous States of America. (Attachment I) He noted that this report or survey is aimed at identifying those factors which might influence a firm's decision to locate a manufacturing facility, a branch plant, in one location as opposed to another. The survey uses traditional types of measures to compare the business climate of one state to that of another state, looking at such factors as taxes, unionization, wages and energy costs, to name a few. He stated that Grant Thornton suggests, very strongly, that the economic environment is changing very rapidly and the states are struggling to adjust to those changes. Dr. Krider called the attention of the Committee to a chart in the report which gives the rankings of Kansas according to Grant Thornton.

Dr. Krider provided the Committee with copies of the Stanford Research Institute (SRI) report. (Attachment II) and noted that it is a significant departure in how consulting firms and other research organizations have ranked business climates in states. He stated that the SRI report looks at the capacity of a state to grow economically in terms of the factors needed for more advanced or competitive industries where access to technology, risk capital and a highly skilled labor force is significant. He said that SRI suggests that the economy of the 1980's is different than the economies in the United States in years past. We now have rapid technological change, internationalization of the economy and an increasing importance of small businesses and entrepreneurs. SRI addresses the question of what states are doing to adjust to these changes in the economy to facilitate economic growth.

Dr. Krider told the Committee that SRI stresses the following as key factors for economic capacity: (1.) Accessible technology - it is crucial to a firm's growth and expansion to have access to technology in a timely manner so they can retain a competitive edge; (2.) Skilled and adaptable labor - in a period of rapid change it is important to have a skilled labor force that can adjust to the new technology; and (3.) Capital availability - to what extent does a state facilitate the availability of capital which firms require either to establish new organizations or to expand and grow within the state. Dr. Krider observed that SRI is very compatible with the kind of issues the Kansas Legislature has been addressing over the past year or so. He said that the SRI report highlights what states are doing to address issues in each of the three categories of factors. He referred the Committee to and discussed with it the charts and summaries of these factors as they

CONTINUATION SHEET

MINUTES OF THE SENATE COMMITTEE ON ECONOMIC DEVELOPMENT,
room 123-S, Statehouse, at 12:35 ~~a.m.~~/p.m. on February 5, 19 87

apply to Kansas. Dr. Krider also pointed out information concerning how Kansas compares to other states in these three categories.

The meeting was adjourned by the Chairman at 1:30 p.m..

GUEST LIST

NAME

REPRESENTING

Gary Toebben

Kansas Industrial Developers Assn.

BOB GRAM

KCCJ

HAROLD PITTS

Topeka

Chris Tammig

Topeka

David Barclay

KDOC

Ann E. Harrison

KSDE

Sharon Oreden

KSDE

Kathryn Dysart

Wichita Public Schools

John Burbee

University Daily Kansas Lawline

Mark Biberstein

Sen. Burke

John Dawes

Dept. of Human Resources

Karen Christy

Sen. Kase

Brilla Highfill Scott

USA

CE/Krish

KU

The seventh annual study of

General Manufacturing Climates

of the Forty-eight Contiguous
States of America

Grant Thornton 

Accountants and
Management Consultants

Featuring an analysis by
The Naisbitt Group

June 1986

Institute for Public Policy & Business Research

607 BLAKE HALL

UNIVERSITY OF KANSAS

LAWRENCE, KANSAS 66045

JUN 10 1986

86 0660

GRANT THORNTON

*Senate Committee on
Economic Development
Attachment I
2-5-87*

Manufacturing Climate Undergoing Dramatic Changes

Now almost four years old, America's recovery from the 1982 economic downturn continues apace, with no evidence of a significant slowdown. While not every region is experiencing the same rate of growth, or anticipating future prosperity with equal assurance, most are in better shape than they were four years ago, and some have experienced a dramatic turnaround. Although uneven performances by major industrial sectors have resulted in uneven economic performances among regions and among states within regions, state officials generally agree that the economic environment looks good for 1986.

In newspapers across America, headlines give us daily reports on the crisis in agriculture, sharp cuts in oil prices, the slowdown in the computer industry, and the ever-fluctuating performance of America's traditional manufacturing industries. What the headlines don't tell us—what we must discern by looking beyond the headlines—is how the undercurrents of social, political, and economic change are altering the U.S. business climate.

Several significant trends are evolving that are certain to affect the United States' manufacturing climate, and in fact the general business climate, today and into the future. It is difficult, if not impossible, to prioritize trends. Trends occur at the grass-roots level, manifesting themselves in the early stages as innovative responses to specific issues of local concern. How dramatically, and how quickly, they change America's landscape frequently depends on how many communities are grappling with similar issues, and the urgency with which a resolution is sought. It is possible, however, to identify trends and to project ways in which trends will affect the overall operating environment for business.

Economic development gets a new definition

In 1985, it was apparent that guaranteeing long-term economic well-being had become the number one priority for state and local governments. Economic development became the hub from which all other initiatives radiated. However, long-term development

goals are being instructed by a political, social, and economic environment that is vastly different from the environment in which goals were set as recently as a decade ago, or even five years ago.

Five years ago, state governors regularly led reconnaissance missions on a worldwide search for industries willing to relocate within their borders. No journey was too long, no obstacle too great, no incentive carried too high a price tag in the all-consuming drive to bring manufacturing plants back home. The press called it "smokestack chasing." Governors were criticized or glorified, depending on the success of their missions.

In the past two years, smokestack chasing has given way to nurturing homegrown businesses, a fundamental shift in emphasis certain to impact on the manufacturing climate. This is not to suggest that states will not lure manufacturers from other states, or other countries, if the opportunity arises. They will. In fact, more than half of the states have offices in Japan and Europe, and many are expanding into Latin America, Southeast Asia and even Africa in search of new trade opportunities for their industries and new sources of direct investment.

If there was one distinguishing characteristic of the governors' 1986 state-of-the-state addresses, it was the fervency with which they committed themselves to economic development, wherever it may lead. Promised newly elected Virginia Governor Gerald Baliles, "It [economic development] will be a major priority of this administration, and personal recruitment activity will be a principal activity of the governor. Whenever a concrete opportunity for expanded economic activity exists, I'll pursue it, you can count on that."

What differentiates the smokestack chasing of five years ago from economic development initiatives of today is that governors no longer promise the moon to corporate executives. Also, investments in state infrastructures, such as highways, clean water, and waste-disposal systems, are being undertaken with an eye toward the needs of businesses already in the states, and on the future needs of new businesses.

Kentucky Governor Martha Layne Collins underscored the importance of homegrown businesses in her state-of-the-state address. Collins was quoted in the Governors Weekly Bulletin, published by the National Governors' Association, as saying, "I want to stress that while investors from outside Kentucky tend to receive the most publicity, our existing business and industries are the backbone of the state's economy. We will never take them for granted...We rely on the plow as we embrace the computer. We mine coal and stand in the vanguard of medicine. We preserve our tradition of handmade crafts and promote robotics. Our farms, our coal mines, remain vital to sustaining our progress. But we're strengthening and expanding our economic foundations. We're providing new opportunities to complement our existing ones."

Governor Collins is joined in her commitment to homegrown businesses by governors across the country. The governors of Idaho, Arizona, and Utah are looking at ways to help ailing mining industries. In Indiana, Massachusetts, Missouri, and New York, among others, traditional manufacturing industries are the target of state initiatives.

Governors from virtually every region announced new programs to assist hard-pressed farmers. California Governor George Deukmejian proposed a \$42 million Rural Renaissance program. Indiana Governor Robert Orr is pressing for an Agricultural Development Corp., and New York Governor Mario Cuomo has requested that the legislature establish a rural development loan fund.

Perhaps the most sweeping agricultural support program is that proposed by Minnesota Governor Rudy Perpich. In a speech before the Minnesota Association of Counties, the governor recommended that the citizenry back a constitutional amendment to permit creation of a state lottery to fund a 15-year, \$2 billion rural development program.

Included in the program would be a revision of the state's bankruptcy laws to exempt \$20,000 in business assets and 160 acres of property, and a \$40-million-a-year program to pay farmers to take land

out of production. A new Greater Minnesota Fund would provide venture capital for new or expanding firms outside of metropolitan areas.

States harness entrepreneurial energy

For most, pragmatism rules where rhetoric once soared. Keenly aware that heavy industry will never return to its glory days, never reach previous productivity levels, and never employ as many workers, state leaders are attempting to harness America's enormous entrepreneurial energies. Connecticut was the first state to recognize that providing capital for business starts also means job creation and tax revenues. In 1975, the state established the Connecticut Product Development Corp. (CPDC). Since then, 19 other states have made venture capital available to entrepreneurs. Twelve of those programs were started in the last two years; seven more states have such legislation pending.

State venture funds fit into three broad categories. One category is Corporations for Innovation Development (CIDs), which provide a mixture of debt and equity financing to start-ups trying to commercialize a prototype. Indiana's Corporation for Science and Technology, for instance, has put \$20.2 million into 36 projects since 1983.

In Ohio, Michigan, Utah, Washington, Oregon and New York, state pension funds can invest up to 5 percent of their portfolios in new ventures, which is the second category of state venture funds. Most are passive, limited partners in private venture funds. Not all investment funds go to start-up firms. Ohio's Public Employee Retirement System (PERS) invested in a \$40 million leveraged buyout.

Private state venture capital funds, the third type of venture fund, take one of two forms. Michigan and Illinois, for example, have set aside state funds to form privately managed, state-sponsored venture funds, with the state retirement system as a limited partner. Other states, like Montana, offer tax incentives to encourage the formation of new venture funds. Eight states sponsor venture funds. Two others, Nevada and Vermont, have legislation pending.

For the most part, the investment strategy of state venture funds differs from their private sector counterparts in that state investors are more interested in job creation and long-term tax revenue generation than they are in realizing a profit on their initial investment.

State support for start-up companies goes beyond investment capital. All 50 states now have at least one program to give entrepreneurs a leg up. State-support activities take a variety of forms, including: small business advisory offices (staffed by government employees), advisory councils (comprised of small business owners), state ombudsmen, legislative committees on small business development, statewide small business conferences, and procurement set-asides. States like New York, Pennsylvania, and Massachusetts are "incubating" small businesses — providing office space, rent subsidies, support staff, and research grants — subsidizing them to maturity and marketing their products abroad.

State and local officials are becoming so involved in business activity that it is all but impossible to know where government ends and private business begins. Government support of business development crosses party lines. It is based on economic imperatives, not political ideology.

Fiscal burden shifting to the states

By the late '70s, the federal government began trimming state financial support programs. Under the Reagan Administration, programs were slashed still further. Since 1980, federal aid to states for employment and job training has been slashed about 50 percent; community and regional development funds have been cut by one-third; and Small Business Administration outlays, except for disaster loans, are down from \$950 million to a meager \$150 million for 1986.

At the same time, federal funds for infrastructure improvements have been drying up. And the \$994 billion federal budget for fiscal 1987, recently proposed by President Reagan, would reduce funding for state

and local governments even further — by \$16.1 billion in budget authority, and \$9.7 billion in budget outlays. Clearly, the fiscal burden has shifted from the federal government to state and local governments. That shift has irrevocably altered the relationship between the federal government and state governments, between state and local governments, and between the public and private sectors, creating a very different business climate for all industry sectors.

Privatization and partnerships: business and government working together

Imminent federal cuts, whether under the President's budget or courtesy of Gramm-Rudman, come at a particularly difficult time for states just getting back on their feet after the '82 economic downturn. Even before the cuts, 14 states had pared spending and scaled back budgets already passed. In response to anticipated federal budget cuts, at least one state — Vermont — is considering the creation of a contingency fund (informally named the Gramm-Rudman Damage Control Bill), financed, in part, by stepped-up efforts to collect taxes. Most state officials contend that while they could probably weather the first round of cuts, they could not survive a second.

Concern over federal financial retrenchment has accelerated the pace at which state and local government officials develop their own long-term economic development initiatives. State officials, for instance, have revived a practice common around the turn of the century — public/private partnerships. Neighborhood renewal and construction of industrial parks, for instance, are products of joint public and private investments.

A sampling of public/private cooperative efforts reveals a new level of sophistication in problem solving at the local level, and proves that terms like innovation, self-reliance, and community compassion are more than political slogans. When Redwood City, Calif., was confronted with growing neighborhood conflicts, including street gang activity, the community established the Target Education and Welfare Council

Inc. The council, in turn, developed a Neighborhood Boards Program. Financed by county funds and corporate grants, the board resolves neighborhood conflicts through arbitration, avoiding protracted lawsuits.

Quincy, Ill., relies on volunteers to counter the effects of decreasing population and loss of industry. This city of 42,500 has 492 volunteer organizations. Staffed by high school students, local residents, and business owners, volunteer organizations have raised money to buy the fire department a rescue truck, and to renovate the junior high school auditorium.

A sweeping trend also is apparent in local government efforts to turn once-public services over to the private sector. According to the International City Management Association, 41 percent of all commercial solid waste collection and 34 percent of all residential collection are done by private contractors. In health services, 25 percent of once publicly managed hospitals is now administered by private firms. Some 48 percent of municipal legal services is provided by private concerns. Highest of all is the share of vehicle towing and storage operations that has been transferred to the private sector: 78 percent.

The privatization of America shows no signs of slowing down. Encouraged by reports of up to 20 percent in savings over the cost of public services, state and local government officials will continue to turn services over to the private sector.

Privatization is not without its critics. Union leaders, among others, assert that private business is able to provide service more cost-effectively because they keep overhead low by hiring nonunion laborers and paying them significantly lower wages. Whether for or against, virtually all political observers agree that in transferring public services to private control, local governments are redefining their role. They're making the distinction between policy setting — including minimum level of services — and actually providing services. In effect, state and local governments are telling constituents that they cannot be all things to all people — that their responsibility lies in guaranteeing that services are

available, not in providing them.

Liability insurance problem leads to new state initiatives

Spurred by widespread difficulties in obtaining liability insurance, many states are modifying their civil justice systems to limit awards in personal injury cases. Nearly every state legislature that has met in 1986 considered bills to change its civil liability system. In some states, bills have passed. In others, bills are pending. It is noneconomic losses that are the focus of the legislative action. For example, New Mexico put a \$50,000 cap on suits against bars which serve patrons alcohol, who later cause accidents. Missouri put a \$350,000 limit on medical malpractice awards for pain and suffering.

Some states are grappling with the problem of "joint" liability, whereby more than one party, often a local government, is held liable. The emphasis is on reducing the scope of joint liability so that the institutions with the most resources are not always left holding the bag.

Quality-of-life concerns move to the forefront

Concerns about new fiscal responsibilities, and the fundamental shift in U.S. economic activity from producing goods to processing information, have fueled two significant trends. Evolving in tandem, they are together altering the manufacturing business climate.

In their 1986 state-of-the-state addresses, a majority of governors mentioned massive shifts taking place in the American economy and the changing role of states in reacting to, or anticipating, them. Across the country, states are broadening their definition of economic development to include education, human resources, employment and training, and other quality of life considerations. In fact, quality-of-life features now are given equal weight to infrastructure development, as states endeavor to keep and maintain a competitive edge in the struggle for economic stability.

Most governors are working on long-range plans to

improve highways, water, sewers, and public facilities. California Governor Deukmejian proposed a five-year, \$12.7 billion plan to improve the state's transportation system. Nevada Governor Richard H. Bryan plans to spend \$231 million for new highway construction and repair. Governor Arch Moore of West Virginia supports a constitutional amendment to expand borrowing authority for \$750 million in highway construction bonds, and Georgia Governor Frank Joe Harris has proposed an economic development/infrastructure program of \$219 million.

While most state officials announced intentions to improve state infrastructures, virtually all of the 50 governors announced intentions to improve the less tangible, but equally important, quality of life in their states and within local communities.

Quality of life is difficult to describe, but easily identified when all the components are present. Every community, for instance, must have an infrastructure in place, sufficient to support its population. Highways, public transportation, sewage and waste disposal facilities must be able to accommodate the needs of most residents. Residents also must have access to educational facilities, health care delivery systems, and they increasingly expect cultural opportunities — museums, libraries, theatres, and concert halls — to be available.

For a community's quality of life to be considered favorably, the cost of housing, transportation, food, and other consumer goods must be in line with average personal incomes. Tax burdens affect the perceived quality of life in a given community, as does the political climate. Access to retail centers, commuting time to work, and job availability also are factored in when quality of life is assessed.

Several other components are even more difficult to measure. Climate is one, recreational facilities another. Ski enthusiasts would feel right at home in the mountains of Colorado, and discontent on Florida's beaches. But sun seekers might find the Rockies forbidding, and the coast of California just right.

It isn't possible to please all the people all the

time. It is, however, essential in these extraordinarily competitive times that every community endeavor to repair its quality-of-life infrastructure. When businesses look for a new home, they consider a great many factors. On American businesses' list of site selection priorities, quality of life ranks second only to level of corporate taxes. All things being equal, quality of life is often the deciding factor.

Education: the new imperative

Of all quality-of-life components, education ranks first in priority. The quality of public education, from preschool to postgraduate studies, is now and will continue to be a primary measure of business climate attractiveness. Commented Governor Lamar Alexander of Tennessee: "We must have Americans with better skills. Better schools are the quickest way to better jobs. Better schools are at the center of America's efforts to become competitive."

Since 1983, when the Commission on Excellence in Education told us that America was at risk — that there was a "rising tide of mediocrity" in the public school system — measureable improvements have been made. Virtually every state has instituted stricter high school graduation requirements and benchmark testing to evaluate student performance at critical steps in the education process, and has beefed up science, math, and communication skills programs.

Continued improvements are expected as state legislatures appropriate ever larger budgets for educational programming. Twenty-two states now have lotteries; in most cases at least some of that money is funneled into education. California expects to garner \$700 million for schools during the lottery's first 18 months. Missouri Governor John Ashcroft wants to supplement general fund financing for an Excellence in Education Fund created last year with part of the \$86 million anticipated lottery revenue. The money will finance a new Education Reform Act.

In some cases, states' education dollars are stimulating additional local investment. Delaware has been successful in offering local school districts money

for increasing teacher salaries on a matching basis. According to Governor Michael Castle, the program has encouraged local districts to hold referendums, thereby increasing local funds for schools. Of 10 districts that voted, nine approved local tax increases for education.

Teachers' salaries have been the target of criticism and anxiety. Widespread efforts to attract good teachers began to pay off when states increased salaries. Most states raised compensation levels at least above the inflation rate in the past two years. Some went a step beyond. Texas increased beginning pay from \$11,000 a year to \$15,200. Tennessee gave its teachers an additional \$1,000 to \$6,000, depending on seniority, and also gave them a greater role in designing courses.

As one corporate executive noted, "Just as the three most important factors in the sale of real estate are said to be location, location, and location, the highest priorities of economic development are education, education, and education."

A high school diploma is not enough in this information-intensive economic environment. However, as the imperative for educational achievement grows, the affordability gap widens. Higher education is being placed out of reach of many middle- and lower-income students, and federal budget cuts threaten to close the doors of higher education to many.

Although every state except Texas increased appropriations for higher education last year, some by as much as 60 percent, the increases did little to make education more affordable. Some colleges and universities are taking matters into their own hands with creative financing programs for students and their parents. Wisconsin's Beloit College, for example, offers what it calls a moral obligation scholarship. Since the money is not officially a student loan, students can repay the full amount as gifts to their alma mater.

The University of Pennsylvania's Penn Plan offers families five different payment strategies. One plan allows parents to pay the entire four years' tuition in the first year, at the freshman rate, and the school will even lend the money at favorable rates to do so. Similar programs are available at other schools

including Case Western Reserve in Cleveland, Washington University in St. Louis, and the University of Southern California.

Corporate America is now stepping in where only educators once tread. According to a report issued by the Carnegie Foundation for the Advancement of Teaching, nearly \$60 billion is spent every year on corporate-run education — about the same as on America's four-year colleges and universities. And about the same number of people — eight million — attend corporate educational programs as are enrolled in traditional educational institutions.

Xerox Corp., RCA Corp., Wang, and many other corporations have built their own facilities, complete with dormitories, classrooms, recreational centers, and degrees at the end of a student's tenure. America's higher education network is in an era of intense competition, likely to become even more intense in the next few years as the number of students graduating from high school continues to decline and the number of corporate-run programs continues to grow.

Environmental quality concerns resurface

Having taken a back seat to more pressing economic concerns for the past few years, environmental concerns are emerging once again as quality of life becomes a more important measure of a community's business climate.

A plentiful supply of water has long played a key role in economic development. When America was creating its massive industrial backbone, most manufacturers built plants on the banks of rivers and streams to harness their energy.

Although today's information industries are less water-intensive, economic development still hinges on the availability and quality of local water resources. But the era of cheap, abundant supplies is over. In many areas, supplies have been tapped to the limit. The Ogallala Aquifer, for instance, a 60,000-square-mile underground water source which spreads beneath eight midwestern states, once contained 650 trillion gallons. Today, it has dropped more than 15 feet in some

areas. In California's San Joaquin Valley, land has dropped more than 30 feet in the last 50 years as the water table subsided. In Texas and Florida, sinkholes have swallowed up cars and even houses as water tables dropped.

Pollution is a clear and present danger. Aquifers and surface water supplies have been contaminated by man-made chemicals from above and, in many coastal areas, by salt water intrusion below the surface. In 1970, the problem was dramatically highlighted when Cleveland's Cuyahoga River caught fire. Although cleanup efforts prompted by the 1972 Federal Water Pollution Control Act have successfully addressed some of the most serious situations, the problem is a long way from being solved.

Across the country, cities' aging water delivery systems allow millions of gallons of water to leak out of the supply chain each day. New York City officials estimate that New York alone loses 100 million gallons of water a day to leakage. In an area plagued by summer droughts, leakage poses critical problems.

Ensuring sufficient water supplies for the next generation requires that state and local governments address the problem immediately. But industry must share the burden. Some already are assuming a measure of responsibility. The Associated Industries of Massachusetts, for example, developed a water management program to help manufacturing companies adapt water conservation techniques to their own operations.

Industry can expect stricter state regulations in the future, and greater efforts to monitor manufacturers' compliance with water quality guidelines. In Georgia, state officials regularly test the poison level in the effluent, or water, discharge from a plant, as well as the water quality in streams both above and below the plant's discharge pipe. Researchers drive the mobile Aquatic Toxicity Testing Unit, a laboratory on wheels, on site to ensure that companies meet state-mandated toxicity guidelines.

Pressures to clean up their act are influencing plant site location decisions. New technologies enable

companies to turn environmentally harmful byproducts into marketable commodities, encouraging some firms to locate plants near markets for those byproducts. Smaller firms that don't have the resources to find markets for their hazardous wastes can use the services of any of a dozen nonprofit "waste exchanges." Generally sponsored by state agencies or private organizations, these exchanges publish the types and amounts of wastes sought and available.

According to federal officials and public health specialists, the Northeast faces more serious problems than other sections of the country, but states there also are moving more aggressively than the rest of the country to clean themselves up. The Northeast Hazardous Waste Coordination Committee, set up by state attorneys general to coordinate enforcement of state and federal toxic waste laws and to provide training and information, is the only such group in the country.

Concern about the health effects of working in plants where hazardous and toxic chemicals are used routinely has resulted in a plethora of "right to know" laws. Twenty-eight states have passed legislation requiring that employers reveal to new employees the types and uses of hazardous material in the work place.

Massive traffic jams and soaring housing prices in suburbia

Like giant industrial magnets, America's network of interstates and local freeways has pulled businesses out of major cities and into suburbia. Originally attracted by lower land prices, lower taxes, and higher skilled workers (but now relocating as much out of a "herding instinct" as strategic planning), corporations have moved their headquarters lock, stock and barrel to areas once almost exclusively bedroom communities.

Thousands of square miles of open land have been plowed under to make way for yet another cluster of glass megastructures, often against the vociferous objections of local residents. Urban villages are quickly becoming the dominant urban form, straining suburban

infrastructures not designed to support unchecked development.

In many communities, suburban growth has carried a hefty price tag. Schools are overburdened. Water and sewage systems are insufficient. Noise and air pollution have increased sharply. And housing prices have skyrocketed. While residents in some areas have banded together, selling whole housing developments as a single unit for millions of dollars, many others have been priced out of their homes, and, in fact, out of their neighborhoods.

Although some new suburban development plans include residential units, apartments, condos, and single-family homes, most are priced far beyond the means of middle-income families.

Considered equally pressing are the traffic jams that have resulted from these new suburban business centers. In fact, in several surveys, suburban residents placed traffic ahead of crime, taxes, and housing costs as a priority concern. Commutes that once took 10 minutes now take an hour. Nonstop, day-long traffic congestion plagues Houston, Dallas, the San Diego Freeway, and Philadelphia's Schuylkill Expressway, to name but a few. Federal budget cuts, and already strained state budgets, mean fewer dollars for highway construction and repair. Traffic management is becoming a priority concern that will take both creativity and new sources of revenue to resolve.

One likely source of funds is impact fees on developers. Local governments are demanding that private developers pay a larger share of the cost of expanding community road networks, sewer systems, and other public services overburdened by growth. In the suburbs north of Atlanta, developers of several large office complexes have agreed to contribute fire trucks, a new police station, an expanded freeway interchange, and improvements in the sewer systems to help offset problems created by their projects.

While commercial and residential developers currently are being expected to pick up the tab for infrastructure improvements (costs which ultimately are passed on to home buyers and renters of office space),

in the not-too-distant future all businesses will be asked to contribute to the cost of maintaining a minimum level of service, beyond current property tax burdens.

Communities create a cultural infrastructure

Technological innovations, each occurring more rapidly than the last — many of them affecting the kind of work we do and the way we perform work-related tasks — have turned most of us into information processors. Furthermore, the bottom line in this extraordinarily competitive global economy is that every component of production — money, technology, equipment — can be exported to anywhere else. Plants can be built anywhere, money moves around the globe 24 hours a day, and communication between any two points on the globe is instantaneous. Businesses can disburse production facilities as the winds of economic fortune dictate.

Only one critical factor of production is relatively stable — the work force, upon whom the future of our economy and our standard of living depend. Human resources are the competitive edge in this information economy. And people can't be replenished like trees. People are replenished, motivated, and inspired by exposure to cultural events, and other leisure pursuits. Increasingly, local governments are discovering that to attract new business and the skilled work force that businesses require, cultural and recreational attractions must be available.

Regional theatres are cropping up all around the country. Symphony orchestras are getting a new lease on life, courtesy of corporate donations. Within the past few years, cities of all sizes have opened new museums or expanded existing ones. Included among them are: Williamsburg, Va.; Des Moines, Iowa; Portland, Me.; Akron, Ohio; as well as Miami, Minneapolis, Milwaukee, Atlanta, Dallas, San Antonio, Boston, and New York City. Announcements of plans to construct art facilities somewhere occur almost daily. Recently, Austin, Texas; Newark, N.J.; and Seattle have disclosed such plans.

Corporations are turning their headquarters into art centers. Pepsico has created a sculpture garden at its 150-acre campus-style headquarters in Westchester County, New York. American Republic Insurance Company, based in Des Moines, Iowa, adorns its hallways and offices with more than 400 works by contemporary artists. Watson Powell III, chairman of American Republic, explains it this way: "Whenever you expand an employee's intellectual horizons, you make him or her a better employee."

Corporate executives who have made the leap into the art world say their interest results from changing priorities in the office. As the new economy shifts hundreds of thousands of workers from manual labor to desk jobs, away from aging, cluttered offices to massive structures of steel and glass, and from paper shuffling to computer screens, executives purchase art as an intellectual stimulant for their employees. Local governments, meanwhile, invest in cultural centers as an investment in economic development.

Health care and welfare: social issues finding solutions

For the health care delivery system in America, it is a good news/bad news situation. The good news is that health care costs are not rising at nearly the same rate as they were as recently as 1982; the bad news is that health care costs continue to climb. The most striking deceleration since 1982 has been in costs of hospital care, which plummeted from an annual rate increase of 13.2 percent in 1982 to 9.3 percent in 1983, 7.4 percent in 1984, and 4.9 percent in 1985.

According to a Health Insurance Association report, the national average cost for a semiprivate hospital room was \$213 in 1985. California's room costs were highest at \$281 per day, Mississippi's the lowest at \$114 per day. Six states actually experienced a drop in hospital room rates — Delaware, New Hampshire, Utah, West Virginia, Georgia, and North Carolina.

What put the brakes on 20 years of unbridled health care cost acceleration? Pressure in the marketplace.

Consumers, insurance companies, the government, and business conspired to drive costs down. Three years ago, for instance, California passed legislation that allowed the state to contract with low-cost hospitals to care for Medicaid patients. First-year savings were an estimated \$100 million. In the late 1970s, Maryland, Massachusetts, New Jersey, and New York set up and refined mandatory hospital rate-setting programs. Estimated savings in 1982 and 1983 were close to \$2 billion.

A growing number of states are following Kentucky's lead in requiring state employees to get a second opinion on certain surgical procedures. The policy already has saved Kentucky \$820,000 since 1982. Other states pursue the avenue Wisconsin legislators chose in 1983, to encourage state employee health plan members to shop among plan options based on price and quality.

States also are limiting the choice of health care providers eligible for Medicaid reimbursements to lower-cost providers; setting up hospital data base commissions, temporarily banning the construction of new health facilities, and setting ceilings on the rate of increases in hospital costs.

The next wave of health care reforms will address unnecessary use of expensive services. While opponents claim such measures are a *de facto* rationing of services, proponents argue that it is possible to monitor use of expensive equipment without compromising quality of care. That remains to be seen.

State legislators also are taking steps to reduce total health care costs by reducing need for care. Seat belt laws typify this type of legislation. In 1984, New York State became the first state to pass a law requiring automobile drivers and front seat passengers to wear seat belts. State officials estimate that the law could lower medical and related expenses by up to \$240 million annually. Some 18 states have followed suit.

Such initiatives, coupled with efforts on the part of third-party payers — businesses and their insurance carriers — to educate employees about price shopping, the need for second opinions in nonemergency care

situations, and life-style choices that contribute to overall health and well-being, have made a significant dent in the percentage of Gross National Product (GNP) spent on health care. In 1984, when the Consumer Price Index (CPI) rose 4.0 percent, the Medical Care Price Index rose only 6.1 percent.

With recent successes in driving down the cost of immediate care, long-term care is certain to be the next target of cost control efforts. Possibly the boldest cost control efforts will be in attempts to stem reliance on the traditional medical care system. Health promotion — programs that encourage exercise, the use of seat belts, and good nutrition, and discourage smoking, drug and alcohol abuse, overeating, and stress reduction — will be the most effective health care cost containment tools of the 1990s. Increasingly, businesses will be expected to offer health promotion incentives along with health care benefits.

Welfare expenditures are another area of concern to state officials. Widespread dissatisfaction with Aid to Families with Dependant Children (AFDC), a \$13.9-billion-dollar program funded jointly by federal and state governments, has prompted action at the state level. Most programs designed to bring down the high cost of welfare link welfare to work. To date, 23 states have workfare programs requiring welfare recipients to work in public sector jobs for their welfare payments.

Increasingly, states are providing remedial education, vocational training, child care, and coaching in job-hunting skills to get welfare recipients off the dole and permanently into the work force. Massachusetts' workfare program is fast becoming a model for similar programs around the country. Participants in the program receive benefits for the duration of their training and also receive money for child care and transportation to and from their place of employment. Job placement following training emphasizes liveable wages and long-term employment potential.

According to Charles Atkins, Massachusetts' welfare commissioner, the state had placed 20,000 welfare recipients in jobs in the past two years, and 86 percent of them were still off welfare 12 months later. Noted Atkins, "Welfare case loads are at a 12-year low. After deducting costs of the program, we've saved over \$60 million."

California's workfare program may be the most ambitious yet. When it's in place five years from now, California plans to enroll as many as 190,000 of the 550,000 adults receiving AFDC. Job training for enrollees will last up to two years, with child care provided, and workfare will be required only after recipients have been granted a 90-day job search grace period.

Most states augment workfare with other jobs programs. West Virginia, for example, provides classes in writing resumes and interviewing skills. The state also gives recipients \$10 a week for transportation while job hunting. Maine offers up to six months of on-the-job training and gives employers a 50 percent wage subsidy for hiring welfare recipients.

Efforts to bring down the high cost of welfare are certain to increase. Workfare programs are likely to spread, with an emphasis on job training and development rather than make-work public sector jobs. To be successful, business and government will have to work together to identify the skills business will need in the future, and to develop training programs that will give those skills to educationally disadvantaged, unemployed welfare recipients.

Quality of life is difficult to describe, but when all the components are in place, a collection of homes and office complexes becomes a community. Local communities take on unique characteristics, and states become a cluster of separate and distinct areas. What follows is a region-by-region assessment of how states within those regions address the quality-of-life concerns that have become critical to business location and relocation decisions.

Summary of Rounded Factor Weightings

Rank	Factors	1985 Factor Weight	1984 Factor Weight	1983 Factor Weight
1	C1: Wages	6.65 %	7.05 %	6.61 %
2	C3: Unionization	6.55 %	6.56 %	6.69 %
3	E1: Energy Costs	6.51 %	7.78 %	8.12 %
4	B4: Workers' Compensation Insurance (WCI)*	5.58 %	5.55 %	5.41 %
5	A1: Taxes*	5.25 %	5.06 %	6.66 %
6	D3: Manhours Lost	5.22 %	5.58 %	5.01 %
7	D4: Value Added	5.12 %	5.04 %	4.59 %
8	C2: Change in Wages	4.93 %	4.70 %	4.21 %
9	B1: Unemployment Compensation (UC) Benefits*	4.87 %	4.38 %	4.53 %
10	A2: Change in Taxes*	4.64 %	4.21 %	4.67 %
11	C4: Change in Unionization	4.60 %	3.84 %	3.74 %
12	A3: Expenditure vs. Revenue Growth*	4.51 %	4.76 %	4.78 %
13	D2: High School Educated Adults*	4.49 %	4.14 %	3.89 %
14	B2: UC Net Worth*	4.45 %	4.37 %	4.09 %
15	B3: Maximum WCI Payment*	4.22 %	4.04 %	4.26 %
16	E2: Environmental Control*	3.77 %	3.94 %	3.89 %
17	D1: Voc-Ed Enrollment*	3.64 %	3.87 %	3.91 %
18	A4: Debt*	3.61 %	3.71 %	4.18 %
19	D5: Hours Worked	3.28 %	3.24 %	2.45 %
20	E4: Population Change	2.88 %	2.71 %	3.13 %
21	E3: Population Density	2.64 %	2.54 %	2.17 %
22	A5: Welfare Expenditure*	2.59 %	2.93 %	3.01 %
		100.00 %	100.00 %	100.00 %

*Indicates factor is controlled or strongly influenced by state or local governments

State and Local Government Fiscal Policies

A

Title and Definition

Factor's Significance to the Business Climate

A1*

Taxes. State and Local Taxes per \$1,000 of Personal Income.

Indicates relative capacity (burden) to fund state tax revenues via personal income.

A2*

Change in Taxes. Percentage Change over Three Years in State and Local Taxes per \$1,000 of Personal Income.

Indicates trend in capacity (burden) to fund state tax revenues via personal income.

A3*

Expenditure Growth vs. Revenue Growth. State and Local Government General Expenditure Growth versus General Revenue Growth over Three Years.

Indicates the ability of the state and local authorities to match general expenditures with general revenues. A factor value greater than one denotes that expenditures increased more quickly than revenues. Similarly, a factor value less than one denotes that revenue increased more quickly than expenditures.

A4*

Debt. State and Local Government Debt per Capita.

Indicates the potential for future tax increases required to service past debt and the ability of a state to raise future debt. This factor was adjusted to exclude non-guaranteed debt. States are not required to service non-guaranteed debt through taxation; therefore, non-guaranteed debt does not indicate the possibility of future taxation. The factor did not reflect any unfunded pension liabilities of state and local governments as the data was not available.

A5*

Welfare Expenditure. State and Local Government Public Welfare Expenditure per Capita.

Indicates a major expenditure category by state and local authorities — an expenditure which is often viewed by businesses as not directly beneficial to their operating performance.

*Denotes that the factor is judged to be controllable or strongly influenced by state or local governments.

State Regulated Employment Costs

B

Title and Definition

Factor's Significance to the Business Climate

B1*

Unemployment Compensation Benefits. Average Unemployment Compensation Benefits Paid per Covered Worker per Year.

Indicates current level of withdrawals from the unemployment compensation trust fund and the potential for increased or decreased unemployment insurance taxes for the employer.

B2*

Unemployment Compensation Net Worth. Net Worth of State Unemployment Compensation Trust Fund per Covered Worker.

Indicates strength of the state unemployment compensation trust fund and the potential for increased or decreased unemployment insurance taxes for the employer.

B3*

Maximum Workers' Compensation Insurance Payment. Maximum Weekly Payment for Permanent and Temporary Total Disability under Workers' Compensation Insurance.

Indicates the maximum weekly claim that has to be paid for permanent and temporary total disability.

B4*

Workers' Compensation Insurance Levels. Weighted Average Workers' Compensation Insurance Levels, per \$100 of Payroll for Manufacturing Classifications.

Indicates the cost of workers' compensation insurance for the employer. This factor represents the ratio of a state's weighted average workers' compensation rate, per \$100 of payroll, to the national average rate. Factor data for 42 of the 48 states was collected in a special study conducted by the Insurance Technical & Actuarial Consultants Corporation (ITAC). Additional state information was compiled by Grant Thornton.

*Denotes that the factor is judged to be controllable or strongly influenced by state or local governments.

Labor Costs

C

Title and Definition**Factor's Significance to the Business Climate**

C1**Wages.** Annual Average Hourly Manufacturing Wage.

Indicates the level of wages and the relative cost of the general labor resource in a state.

C2**Change in Wages.** Percentage Change over Three Years in Annual Average Hourly Manufacturing Wage.

Indicates the trend in wage rates and the trend in the cost of labor.

C3**Unionization.** Unionized Manufacturing Employment as a Percent of Total Manufacturing Employment.

Indicates degree of workforce unionization and potential impact of unions on labor costs and labor relations. Factor data was compiled by Leo Troy, Ph.D., Rutgers University. Union membership data represents the most current information available. The factor represents only manufacturing unionization.

C4**Change in Unionization.** Percentage Change over Two Years in the Unionized Manufacturing Workforce.

Indicates unionization trends in the workforce. Data for this factor was prepared by Leo Troy, Ph.D., of Rutgers University.

Availability and Productivity of Labor Force

D

Title and Definition

Factor's Significance to the Business Climate

D1*

Voc-Ed Enrollment. Government Funded Vocational Educational Enrollment as a Percentage of Population 16-64 Years of Age.

Indicates current and future ability of a state to provide skilled workers. This factor was re-structured in our 6th edition because of a change in reporting requirements. Non-collegiate post secondary and non-government funded enrollment is no longer readily available and uniformly tabulated and, therefore, is not included. Comparison to previous studies may not be applicable.

D2*

High School Educated Adults. Percentage of High School Educated Adults between 25-64 Years of Age.

Indicates level of the trainable workforce available in a state. D2 was modified in our 6th edition to reflect the primary workforce.

D3

Manhours Lost. Average Percent of Manufacturing Working Time Lost Due to Work Stoppages over Two Years Involving 1,000 or More Workers.

Indicates stability of the labor force and the effect of work stoppages on productivity which results in higher manufacturing costs. For the second consecutive year, data was obtained from Leo Troy, Ph.D., Rutgers University. Previously, data was provided by the Bureau of Labor Statistics which no longer collects statistics in the detailed manner of previous years. Data was not available for work stoppages pertaining to less than 1,000 affected workers.

D4

Value Added. Value Added by Manufacturing Employees per Dollar of Production Payroll.

Indicates the operating cost relationship of manufacturing employees.

D5

Hours Worked. Annual Average Hours Worked per Week.

Indicates average work week and reflects the general manufacturing worker utilization.

*Denotes that the factor is judged to be controllable or strongly influenced by state or local governments.

E**Other Manufacturing-Related Issues**

Title and Definition

Factor's Significance to the Business Climate

E1**Energy Costs.** Fuel and Electric Energy Costs per Million BTUs for Manufacturers.

Indicates average estimated cost of energy for manufacturers in a state.

E2***Environmental Control.** Net Pollution Abatement Expenditures as a Percentage of the Value of Manufacturing Shipments.

Indicates the net amount (i.e., capital expenditures, government payments, operating costs and cost recovery) of the pollution control effort expended per dollar value of manufacturers' shipments. This factor was restructured in our 6th edition because state expenditures for pollution abatement were not uniformly reported or readily available. Comparisons to prior studies may not be applicable.

E3**Population Density.** Population Density per Square Mile.

Indicates population density of general markets and workforce availability.

E4**Population Change.** Net Change in Population over Three Years (000's).

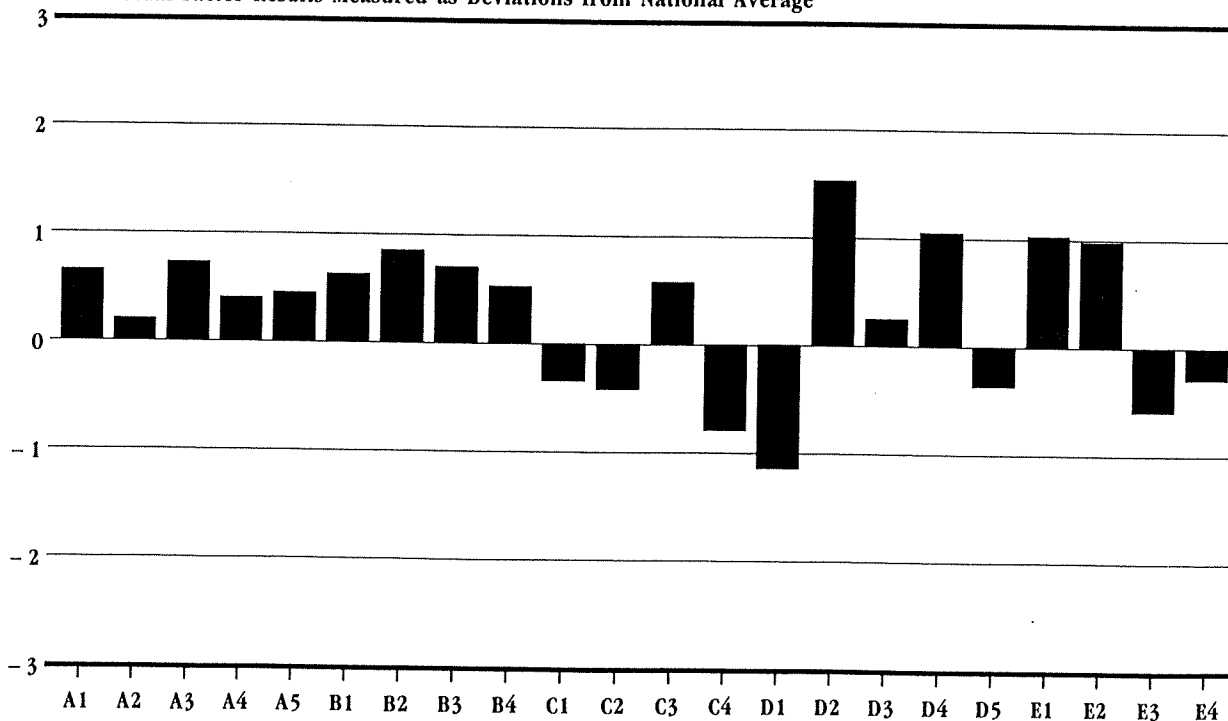
Indicates growth or decline in size of general markets and availability of workforce.

*Denotes that the factor is judged to be controllable or strongly influenced by state or local governments.

Kansas

	All Factors	Gov't Factors	Non-Gov't Factors
National Rank	9	4	18
Regional Rank	4/9	2/9	5/9
Factor	National Rank	Factor Value	National Average
A1 - Taxes**	12	\$103.42	\$115.58
A2 - Change in Taxes**	21	3.11 %	4.69 %
A3 - Exp. vs. Rev. Growth**	12	0.719	0.867
A4 - Debt**	20	\$585.64	\$755.61
A5 - Welfare Expenditure**	23	\$193.56	\$235.25
B1 - UC Benefits**	15	\$124.61	\$167.35
B2 - UC Net Worth**	7	\$282.11	\$ 57.10
B3 - Maximum WCI Pmt.**	12	\$227.00	\$288.75
B4 - WCI Levels**	16 =	0.794	1.000
C1 - Wages	32	\$ 9.40	\$ 9.02
C2 - Change in Wages	28	16.77 %	15.16 %
C3 - Unionization	18	13.14 %	20.26 %
C4 - Change in Unionization	38	2.60 %	- 4.89 %
D1 - Voc-Ed Enrollment**	42	2.02 %	3.62 %
D2 - HS Educated Adults**	4	88.41 %	79.98 %
D3 - Manhours Lost	28	0.044 %	0.098 %
D4 - Value Added	7	\$ 4.69	\$ 4.11
D5 - Hours Worked	32 =	40.2	40.6
E1 - Energy Costs	5	\$ 3.91	\$ 5.19
E2 - Environmental Control**	8	0.266 %	0.517 %
E3 - Population Density	37	29.8	161.7
E4 - Population Change	23 =	50	135

Individual Factor Results Measured as Deviations from National Average*



*Above graph indicates each factor's number of standard deviations from the national average. The graph is constructed such that bars above the center line reflect a positive contribution to the state's score. Those below the line reflect a negative contribution to the overall score. The underlying factor values are unweighted.

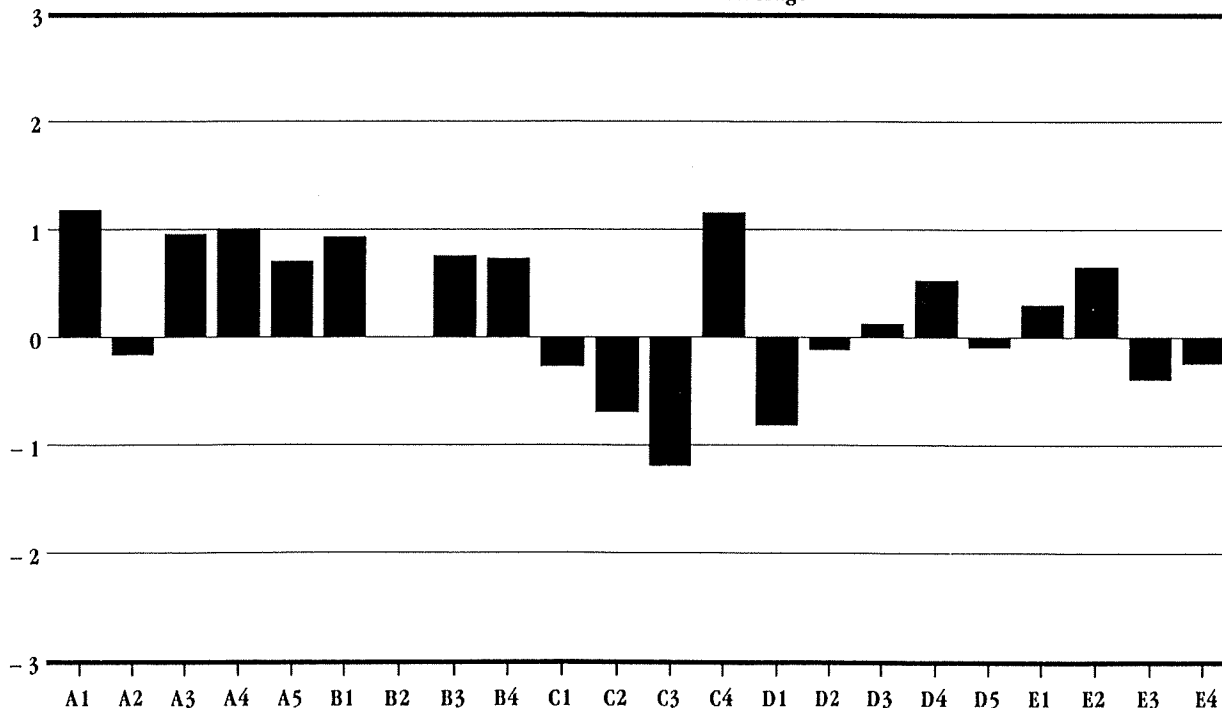
**Denotes factor controlled or strongly influenced by state or local government.

= Denotes tie in rank.

Missouri

	All Factors	Gov't Factors	Non-Gov't Factors
National Rank	16	7	29
Regional Rank	5/9	3/9	8/9
Factor	National Rank	Factor Value	National Average
A1 - Taxes**	3	\$ 93.00	\$115.58
A2 - Change in Taxes**	34	6.02 %	4.69 %
A3 - Exp. vs. Rev. Growth**	10	0.675	0.867
A4 - Debt**	6	\$327.28	\$755.61
A5 - Welfare Expenditure**	13	\$171.23	\$235.25
B1 - UC Benefits**	10	\$104.74	\$167.35
B2 - UC Net Worth**	32	\$ 59.35	\$ 57.10
B3 - Maximum WCI Pmt.**	10	\$222.73	\$288.75
B4 - WCI Levels**	12	0.710	1.000
C1 - Wages	30	\$ 9.32	\$ 9.02
C2 - Change in Wages	34	17.97 %	15.16 %
C3 - Unionization	41	35.05 %	20.26 %
C4 - Change in Unionization	8	-15.71 %	-4.89 %
D1 - Voc-Ed Enrollment**	37	2.42 %	3.62 %
D2 - HS Educated Adults**	29	79.36 %	79.98 %
D3 - Manhours Lost	35	0.070 %	0.098 %
D4 - Value Added	19	\$ 4.40	\$ 4.11
D5 - Hours Worked	25 =	40.5	40.6
E1 - Energy Costs	21	\$ 4.83	\$ 5.19
E2 - Environmental Control**	17	0.350 %	0.517 %
E3 - Population Density	26	72.6	161.7
E4 - Population Change	19	69	135

Individual Factor Results Measured as Deviations from National Average*

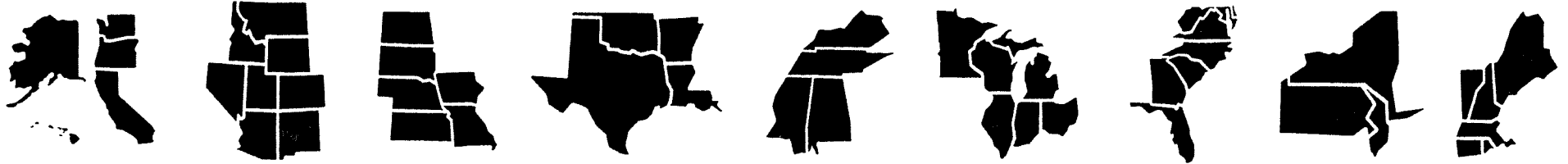


*Above graph indicates each factor's number of standard deviations from the national average. The graph is constructed such that bars above the center line reflect a positive contribution to the state's score. Those below the line reflect a negative contribution to the overall score. The underlying factor values are unweighted.

**Denotes factor controlled or strongly influenced by state or local government.

= Denotes tie in rank.

THE AMERITRUST/ SRI



First Report, December 1986

*Linda Committee on
Comm. Govt.
Attachment II
2-5-87*

CONTENTS

2	FORWARD
3	FACTORS CONTRIBUTING TO ECONOMIC CAPACITY
5	PREVIOUS INDICATORS OF ECONOMIC CLIMATE
7	THE NEW APPROACH: INDICATING ECONOMIC CAPACITY
8	Ameritrust/SRI Indicators of Economic Capacity
8	Accessible Technology
9	Skilled and Adaptable Labor
10	Capital Availability
12	RANKING OF U.S. REGIONS ON SELECTED ECONOMIC CAPACITY INDICATORS
16	DETAILED DESCRIPTIONS OF SELECTED REGIONS
16	New England
18	Midwest
19	West North Central
21	Pacific
22	SUMMARIES OF OTHER REGIONS
22	Mid Atlantic
23	Mountain
23	South Atlantic
23	West South Central
23	East South Central
24	A CLOSER LOOK AT THREE STATES
24	South Dakota
24	Michigan
25	New York
26	APPENDIX: REGIONAL PERFORMANCE COMPARISONS
32	APPENDIX: STATE AND REGIONAL SCORES
38	SOURCE DOCUMENTS

FOREWORD

During the past two decades, the American economy has undergone a fundamental transformation. Below the surface of cyclical changes in economic activity, deep structural shifts have been occurring, including rapid technological changes, increased internationalization of American business, and an extraordinary growth in entrepreneurial ventures. Every region of the United States has been affected, but not uniformly.

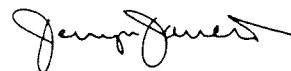
The differences in economic performance among regions in the United States have been of long-standing interest to both Ameritrust and SRI International. We believe that the long-term economic potential of our nation's states and regions can be enhanced by improving our understanding of the factors that drive competitive performance.

We are concerned that current measures of regional economic performance do not provide an adequate explanation of disparate growth among regions; in fact, they can be misleading and are frequently misinterpreted. For example, one popular index characterizes state and regional business climates primarily on the basis of factors applicable to manufacturers using standardized production processes and employing workers who perform routinized tasks. Recent trends have shown that this unnecessarily narrow vision of the American economy overlooks the more complex needs of many changing and new industries. Furthermore, this index does not correspond well with investment decisions being made by domestic and foreign companies.

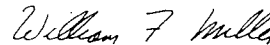
To provide a better assessment of the economic capacity of different U.S. regions and states, Ameritrust and SRI have developed a new set of indicators. We believe these indicators measure factors that help businesses to be competitive in current and likely future economic circumstances, and that they more accurately reflect relative potential for economic growth than do existing measures.

The indicators presented in this report are in a developmental stage. In the future, we intend to assess empirically their relative importance in determining regional growth patterns. We also plan to augment the base of current indicators by gathering new data that can be correlated with regional economic performance. Periodic updating of data elements also will be required.

We welcome comments on the value and utility of the indicators we have included in this report for assessing state and regional economic capacity, and encourage suggestions for other indicators and data sources that we might consider using in future reports.



Jerry V. Jarrett, Chairman and
Chief Executive Officer
Ameritrust Corporation



William F. Miller, President and
Chief Executive Officer
SRI International

**FACTORS CONTRIBUTING
TO ECONOMIC CAPACITY**

FORCES OF ECONOMIC CHANGE

Regional economies in the United States have been transforming because of basic changes in the U.S. economy. The differences between the traditional and emerging U.S. economies can be characterized as follows:

<i>Prior Economy</i>	<i>New Economy</i>
Slow technological change	Rapid technological change
Limited foreign competition	Internationalization of the economy
Large corporations prevalent	Increasing importance of small businesses and entrepreneurs as sources of jobs

It is important to consider the implications of each of these new forces in evaluating the capacity of areas to sustain economic growth.

TECHNOLOGICAL CHANGE

The American economy is experiencing rapid technological change, with significant increase not only in new high-technology products but also in production technology. Rapid technological change has altered economic capacity in several ways. First, it is increasingly important that technology be accessible to industry. Although knowledge is *ultimately* mobile and available everywhere, firms that have ready access to new developments in research will have an important competitive advantage during a period of rapid technological change. Second, increased automation and, indeed, robotization of production technology is eliminating many simple jobs and creating new, more highly skilled jobs, increasing the demand for skilled labor. Further, as production technologies change and more efficient procedures evolve, the work force must be adaptable enough to learn new skills — perhaps to continually adjust its methods of working. Thus, it is important to measure both access to technology and the skill and adaptability of a region's work force.

INTERNATIONALIZATION OF THE ECONOMY

In conjunction with rapid technological change has come greater internationalization of the economy. As a result of increased competition from foreign companies with lower production costs, American industry has been locating more production facilities abroad, particularly routinized production. Specialized or developmental processes have tended to remain in the United States. Therefore, U.S. regions with a more highly skilled work force and better educational opportunities are likely to become more attractive and have more sustained growth than regions where the major advantage is low-wage, low-skilled labor.

Another consequence of internationalization is that the large integrated corporation is now being superseded in many industries by the international "network" corporation. To do business in a global economy of greater size, complexity, and competitiveness, many companies have headquarters in

...firms that have ready access to new developments in research will have an important competitive advantage during a period of rapid technological change.

... regions that offer only low production costs are becoming "branch plant" economies, while regions offering accessible technology and more skilled labor are well positioned to attract the innovative components of such corporations.

one location, and design, engineering, and manufacturing facilities in others. Although not characteristic of the majority of firms, the movement toward the "network" company indicates the development of less geographically dependent enterprises. As a result, regions that offer only low production costs are becoming "branch plant" economies, while regions offering accessible technology and more skilled labor are well positioned to attract the innovative components of such corporations.

THE GROWTH OF ENTREPRENEURSHIP

Finally, although entrepreneurs have always been important, there is a growing recognition of the critical role that they play in the American economy. Rapid changes, both in technology and in the prices of foreign goods and labor, create a greater need for innovative production processes and products.

Entrepreneurs who recognize and take advantage of opportunities, and who have adequate access to investment capital, are playing a key role in the revitalization of the American economy. Moreover, the evidence that new small businesses account for a great deal of job creation (as well as job losses through business failures) underscores the importance of fostering creative entrepreneurship.

CRITICAL FACTORS FOR ECONOMIC CAPACITY

In sum, because of the rapid changes in technology, the internationalization of American businesses, the evolution of less integrated corporations, and the increased importance of entrepreneurs, three factors are emerging as critical to the economic capacity of states and regions:

- *Accessible technology*— the extent to which there are adequate science and technology resources, accessible research institutions, and mechanisms for the commercialization of technologies.

- *Skilled and adaptable labor*— the extent to which an area possesses a skilled and adaptable work force (its human capital) in a rapidly changing competitive environment, maintains strong education and training institutions, and encourages public-private collaboration to meet the skill needs of business and the training and retraining needs of individuals.
- *Capital availability*— the extent to which capital is available for all types of business needs (from new enterprise formation to corporate venturing by large firms) through a variety of lending sources, including regional financial institutions and venture capitalists; and the extent to which the availability of capital is encouraged by state regulatory and other policies.

These factors constitute the focus of the Ameritrust/SRI Indicators of Economic Capacity.

PREVIOUS INDICATORS OF ECONOMIC CLIMATE

INDEXES BASED ON OPINIONS

One approach used to devise economic indicators is to ask for opinions about the importance of various factors that make up business climate. For example, in preparing its annual study of manufacturing climates,* Grant Thornton asks manufacturers' associations to assign weights to indicators based on their assessment of the relative importance of each item to the "general manufacturing business climate of the state." In the 1986 Grant Thornton index, the Midwest region ranked the lowest; the New England, Pacific, and Middle Atlantic regions also received very low rankings. The Southwestern region was the top-ranked region for manufacturing business climate, and South Dakota was ranked as the state with the best manufacturing business climate.

Although the Grant Thornton index may be useful for assessing business climate for certain traditional manufacturers, its approach has limitations.

First, the use of opinions about the relative importance of various factors is not always a reliable procedure. Rather than identifying the relative contribution of each factor to the total cost of production, this procedure measures the importance of immediate problems perceived by manufacturers' association staffs to be threatening profits *at the margin*. For example, the weight of factors in the Grant Thornton index that measure state and local fiscal policies (including tax policies) increased by 30% between 1982 and 1983. It is not likely that production process changes between 1982 and 1983 made taxes dramatically more important to the cost of production. Rather, it is likely that in 1983 the manufacturers' associations were more concerned that state taxes might increase than they were in 1982.

The second problem with this approach is the choice of business climate indicators. The Grant Thornton indicators focus heavily on production costs, particularly labor costs, and pay only scant attention to quality factors. For

example, states can score high on the Grant Thornton index if they spend little on education, resulting in low taxes but also in an unskilled work force that can command only the lowest wages. This type of business climate may be supportive for certain manufacturing firms that have fairly stable markets, heavy capital investment requirements, relatively low-wage work forces performing routinized tasks, and that need to produce commodity products at low cost in order to keep pace with other domestic or overseas competitors. However, it is less suitable for many advanced-technology, high-innovation firms that have rapidly changing markets, require highly skilled and adaptable work forces (and the educational infrastructure to keep them that way), and need to offer a high quality of life to attract and retain top engineers, scientists, and entrepreneurial managers.

... states can score high on the Grant Thornton index if they spend little on education, resulting in low taxes but also in an unskilled work force that can command only the lowest wages.

* Grant Thornton *The Seventh Annual Study of General Manufacturing Climates of the Forty-eight Contiguous States of America* June 1980

Although the Inc. index correctly recognizes the importance of smaller, high-growth businesses to state economies, it only focuses on what has happened... not why it is happening.

Further, many of the Grant Thornton indicators measure the level of *current business activity*. Local business activity may well help improve local markets for small firms, but it is likely to have little influence on the viability of manufacturing and service firms that export to other regions. Such indicators are likely to be inaccurate representations of the economic *capacity* of regions that are currently experiencing downturns in the markets served by their industries.

The third problem is that the results are used to create a single index to rank states. Use of a single index ignores the important fact that different industries have very different resource needs and that the comparative advantage a region offers varies accordingly. Also, ranking states implies that economic change is a "zero sum" game with winners and losers. However, if the true advantages of each region are accurately identified, it becomes clear that economic growth can be shared among all areas of the country.

INDEXES BASED ON OUTCOME

Other indexes of economic climate have only limited applicability because they focus on outcomes. For example, a new index has been developed by *Inc.* magazine to measure how well states stimulate entrepreneurial activity and economic expansion. It contains indicators for current business activity, which, as discussed above, are much more relevant for businesses serving local customers than for those serving a national market. Although the *Inc.* index correctly recognizes the importance of smaller, high-growth businesses to state economies, it only focuses on *what* has happened (job creation, new business creation, and young-company growth), not *why* it is happening. Although measuring new business activity is important, measuring recent outputs without linking them to various inputs (technology, human resources, and capital, for example) doesn't address the equally important issue of state capacity for continued economic growth.

FORECAST MEASURES

Another type of indicator that should be distinguished from the Ameritrust/SRI indicators is a forecast of the actual economic output of a region or a state. Although such forecasts provide useful information about short-run changes in a regional economy, they are obtained by examining recent trends in economic conditions and extrapolating those trends into the future. Forecasts based on past trends are particularly misleading for areas such as the Midwest, which have suffered recent transitional, structural dislocations but still have a sound economic base for recovery.

THE NEW APPROACH: INDICATING ECONOMIC CAPACITY

PURPOSE OF THE AMERITRUST/SRI INDICATORS

The central purpose of the Ameritrust/SRI Indicators is to help business leaders and public officials make more informed investment and policy decisions, based on an improved understanding of the strengths and weaknesses of their state's or region's economic infrastructure. Currently, state and regional economies are being restructured in response to national and global economic forces. Competitive adjustment and response require an understanding of the factors driving this economic transformation. Measuring factors of change and understanding their dynamics are critical to both individual business decisions and state economic policy.

Our report offers a new framework and a new set of indicators that quantify some of the key resources needed to succeed in today's changing economic environment. We hope it encourages a rethinking of current measures of economic capacity and that it helps public and private leaders to better understand what is happening within their regions.

SOME QUALIFICATIONS

Data for the indicators were taken from the most current sources at the time of compilation. Some measures are based on data from one-time studies. As new data become available, the indices will need to be updated.

The scores for indicators in this report have not been aggregated into a composite index, which might then be used for direct comparison of overall state and regional business climates. For reasons already stated, we believe such an approach would be unreliable, misleading and often counterproductive. Rather, our indicators are intended to illustrate geographic variations across a spectrum of factors that influence investment decisions. We leave it to individual business leaders and public policymakers to assign weights to individual indicators, based on their own resource requirements and the competitive structure of their industries.

A danger in using any indicator is that policymakers may be tempted to focus on the scores themselves — how to improve their ranking on the indicators — rather than on the underlying economic realities that caused the low scores. Improvement in the underlying

economic infrastructure should be the policy objective, not improvement in the scores. It is our conviction that improvements in capacity will lead to improvements in indicator scores and, more importantly, in economic performance.

TYPES OF INDICATORS

As traditional business climate measures have become less important to business planning and investment decisions, the search for new measures has begun. Three types of useful indicators can be developed for a local, state, or regional economy:

- Indicators of economic capacity, including the accessibility, price, and quality of economic and human resources.
- Indicators of whether those resources are being applied.
- Indicators of the output of the economy.

The focus of the initial Ameritrust/SRI Indicators is on economic capacity. They describe the *potential* that areas have for economic growth — for example, the accessibility of technology to local business. The indicators do not measure

The focus of the initial Ameritrust/SRI Indicators is on economic capacity. They describe the potential that areas have for economic growth.

outcomes, such as areas where technology is actually being applied or where productivity is high because of the application of new technology. These measures *are* needed to monitor the progress of regions, and they will be developed in a later stage of Ameritrust/SRI's efforts.

AMERITRUST/SRI INDICATORS OF ECONOMIC CAPACITY



ACCESSIBLE TECHNOLOGY INDICATORS

In a period of rapidly changing technology, when new products and new industries are emerging, firms have a greater need to have close ties with institutions conducting relevant basic and applied research. Because colleges and universities form an important core for technological capacity, several indicators focus on the quality and activities of these institutions. We have also attempted to measure the amount of industrial research going on in various regions. Each of the measures that follow was chosen because it represents the best readily available approximation of different kinds of capacity in this category.

Because colleges and universities form an important core for technological capacity, several indicators focus on the quality and activities of these institutions.

Quality of Science and Engineering Faculty

The quality of science and engineering faculty is important because high-quality faculty may contribute to technological innovation through their own research, by serving as advisors and consultants to local corporate R&D staff, and by attracting and training high-quality scientists and engineers. The measure of faculty quality is obtained from a National Research Council survey of academic scientists about the faculty quality in various science and engineering schools. The indicator equals the average score for the schools in each state, weighted by the number of faculty members in each discipline.

Research Articles Per Faculty Member

Another indicator of the quality of academic science and engineering programs is the number of research articles published in scientific and engineering journals per faculty member. Although some faculty research may be academic and not applicable to specific industry needs, we still consider this indicator a reasonable measure of overall quality since it is related to faculty excellence.

Science and Engineering Ph.D. Graduates Per Capita

The number of Ph.D. graduates in science and engineering indicates the size of the postgraduate science and engineering programs in each state. Larger programs provide greater access than smaller programs. Further, the number of new Ph.D. degrees can indicate the human resources potentially available in the state. Measuring this indicator (as well as the following five indicators) on a per capita basis allows for differences in state size.

Total R&D in Universities Per Capita

Total R&D expenditures from all sources indicate the amount of research activity going on in university settings.

Industry R&D in Universities Per Capita

R&D expenditures by industry in colleges and universities indicate the extent to which industries and academic researchers are cooperating in their research efforts. Cooperation is key to the accessibility of technology.

State and Local Government R&D in Universities Per Capita

The level of R&D expenditures by state and local government indicates the

commitment of these governments to developing new technology needed by the state's industries.

Industry R&D Per Capita

Although R&D activities of one firm may not be directly accessible to other firms in the area, we have included a measure of industry expenditure on R&D per capita because it is likely that these expenditures provide some benefits to the industry as a whole. Further, the fact that firms have chosen to conduct their R&D in an area confirms the suitability of the area for that industry's R&D.

Number of Patents Issued Per Capita

The number of patents received per capita by residents of the state is included because we believe it is an important indicator of the amount of applied research taking place.

University-Industry Initiatives

We also take account of whether a state has set up a program specifically designed to foster linkages between academic research and industry in order to encourage commercialization of emerging technologies. State government initiatives to link academic and industrial research can make technology much more accessible to local industries.

Directions for Further Study

Although the indicators we have included in this report constitute very useful measures of technology accessibility, we recognize the need to augment our current data base with additional indicators and to refine some of our current measures. Data on private R&D spending outside universities, for example, is not currently collected at the state level. Industry R&D spending in universities is included, but those figures represent only a part of total industry R&D, much of which is conducted in-house. Finally, our measures vary significantly in type and precision. Some are measures of resources, while others are performance indicators. In addition, accounting limitations and other measurement inconsistencies may affect scores in some cases.



SKILLED AND ADAPTABLE LABOR INDICATORS

The second element of economic capacity that we measure is the skill level and adaptability of an area's work force. The indicators of work force quality fall into three categories: quality of existing work force, quality of educational institutions, and use of education and training institutions.

Work Force Quality

We provide data on the following factors which we believe indicate the quality of a state's work force:

- *Percentage of Population over 25 with Education Level of Grade Eight or Less.*
- *Percentage of Population over 25 with Education Level of Four Years of High School or More.*
- *Percentage of Population over 25 with Education Level of Four Years of College or More.*

Employees with eight or fewer years of education are likely to require considerable training to learn new production technologies and may lack the skills needed to perform complex tasks. Furthermore, states with poorly educated workers are vulnerable to competition from countries with low-priced, unskilled labor. The second and third measures are used because some industries may require workers with at least a high school education, while other industries may need workers with college-level experience.

... states with poorly educated workers are vulnerable to competition from countries with low-priced, unskilled labor.

... many venture capital companies explicitly give preference to local firms because they can monitor the behavior of high-risk start-ups more closely.

Quality of Educational Institutions— There is no consensus about the most appropriate way to measure the quality of schools. Therefore, we have chosen to measure several dimensions:

- *Expenditures Per Pupil on K-12 Education.*
- *Total Education Expenditures Per Capita.*
- *Average SAT (Scholastic Aptitude Test) Scores or Average ACT (American College Testing) Scores.**
- *Percentage of State's College Students Attending School in That State—* This measure is indicative of how well a state's colleges and universities serve the needs of its own residents.

Use of Education and Training Institutions

The proportion of the state's population between 16 and 25 currently enrolled in occupational training or schooling is an important measure of work force potential.

**Note - Only one average score (SAT or ACT) is reported for a state's high school students who have taken these tests. Regional rankings in the chart on pages 12-14 are based upon the test used predominantly within each region.*

- *16 to 24 Year Olds Attending Noncollege Vocational School—* A high percentage enrolled in non-college vocational programs (including proprietary schools) may indicate needed technical skills in the work force. It is important to note, however, that such training can result in limited work force versatility if such programs are teaching specific skills rather than knowledge of an entire process.
- *16 to 24 Year Olds Attending Two-Year and Four-Year Colleges—* A high percentage currently enrolled in broader educational training through two-year community colleges or four-year colleges may indicate that a region is producing more adaptable workers.

Directions for Further Study

The skilled and adaptable labor indicators we have chosen are useful measures of state and regional human resource infrastructure, but they are by no means complete. For example, data on public expenditures such as spending per pupil are readily available, but data on private education and training expenditures have been only estimated

generally. Second, although some performance measures are included, our report does not make any assumptions about the effects of various spending levels on student performance. Finally, although educational attainment data are included, data on the actual level of skill attainment, as well as the ability of individuals to adapt to ever-changing job demands, have not been well documented.



CAPITAL AVAILABILITY INDICATORS

The availability of capital to entrepreneurs is important to the economic capacity of a region. The indicators that we have chosen fall into three categories: potential availability of capital from financial institutions, state regulation of capital markets, and state initiatives to enhance capital formation.

Availability of Capital from Financial Institutions

This category includes two indicators:

- *Total Equity Capital Per Capita—* In general, businesses in states with more capital per capita are likely to find it easier to obtain loans.

- *Venture Capital Funds Per Capita*— Venture capital companies are an increasingly important source of capital to entrepreneurs. Further, many venture capital companies explicitly give preference to local firms because they can monitor the behavior of high-risk start-ups more closely.

State Initiatives for Capital Formation
State initiatives to increase capital formation can reduce the cost or increase the availability of capital, particularly to new firms. Banks may lend new enterprises less than required because of banking laws that limit the number of high-risk loans. States can reduce this problem by allowing lending to higher-risk firms (at an appropriate risk-adjusted rate) or by other state initiatives for capital formation.

Direct subsidy of business by states through tax incentives is not included in our set of indicators; subsidization is a zero sum game, with one state “buying” business at the expense of another. The state activities we have chosen increase the efficiency of capital markets, resulting in more economic growth, not redistribution of existing economic activity.

State Regulation of Capital Markets
This category includes five indicators:

- *Absence of Interest Rate Ceilings*— State regulations can reduce the availability of capital to entrepreneurs by imposing interest ceilings on business loans and by restricting the availability of funds to high-risk start-up companies. Thus, we have chosen the absence of interest rate ceilings as an indicator of capital availability.
- *Allow Branch Banking*— Smaller business and start-up firms are likely to get financial capital locally. States that allow branch banking are likely to have more local bank competition and thus lower interest rates.
- *State Equity or Venture Capital Funds*— Some states have been investing directly or indirectly in companies in exchange for an ownership interest.
- *State Loan Guarantee Loan Program*— Some states guarantee private-sector loans to facilitate business expansions that entail unusual but reasonable levels of risk.

- *Business Incubators*— State-supported incubators provide a number of benefits to new businesses: below-market rents; on-site business assistance; assistance in obtaining financing; and, in some cases, employee training and placement. In addition, locating new businesses together allows them to share common costs and benefit from each other’s experiences.

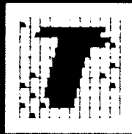
Directions for Further Study

In addition to the capital availability indicators used in our report, there are other measures that would provide additional insights if data on them can be compiled through subsequent research. For example, data on financial reserves and some information on levels of innovation are readily available, but data on actual lending practices are much more difficult to aggregate. Also, corporate investment capacity does not necessarily correspond with attitudes regarding investment, particularly with respect to certain industries and geographic areas. Measures that provide correlations between these two variables would be very useful.

Direct subsidy of business by states through tax incentives is not included in our set of indicators; subsidization is a zero sum game, with one state “buying” business at the expense of another.

**RANKING OF U.S. REGIONS
ON SELECTED ECONOMIC
CAPACITY INDICATORS**

**ACCESSIBLE
TECHNOLOGY**



Top 1/3 of U.S. Regions
Middle 1/3 of U.S. Regions
Bottom 1/3 of U.S. Regions

Quality of science and engineering faculty
Research articles per faculty
Science and engineering Ph.D. graduates (\$ per Capita x 1,000)
Total R&D in universities (\$ per Capita)
Industry R&D in universities (\$ per Capita)
State and local R&D in universities (\$ per Capita)
Industry's own R&D (\$ per Capita)
Number of patents issued (per Capita)
University-industry initiatives

**SKILLED AND
ADAPTABLE
LABOR**



Top 1/3 of U.S. Regions
Middle 1/3 of U.S. Regions
Bottom 1/3 of U.S. Regions

Percentage of population
over 25 with various
educational levels.

Grade 8 or less
At least 4 years high school
At least 4 years college
Expenditure/pupil (K-12) (\$ per pupil)
State and local total educational expenditure (\$ per Capita)
Average SAT score
Average ACT score
Percentages of state's college students attending within state

Number attending various
institutions as percent of
those 16 to 24 years old.

Noncollege vocational training
2-Year college
4-Year college or university

**CAPITAL
AVAILABILITY**



Top 1/3 of U.S. Regions
Middle 1/3 of U.S. Regions
Bottom 1/3 of U.S. Regions

Total equity capital in commercial banks (000's \$ per Capita)
Size of venture capital fund (\$ per Capita)
No interest rate ceiling
Allow branch banking
State equity and venture capital funds
State loan guarantee program
State sponsored business incubators

PACIFIC

Alaska
California
Hawaii
Oregon
Washington



MOUNTAIN

Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming



WEST NORTH CENTRAL

Iowa
Kansas
Missouri
North Dakota
Nebraska
South Dakota



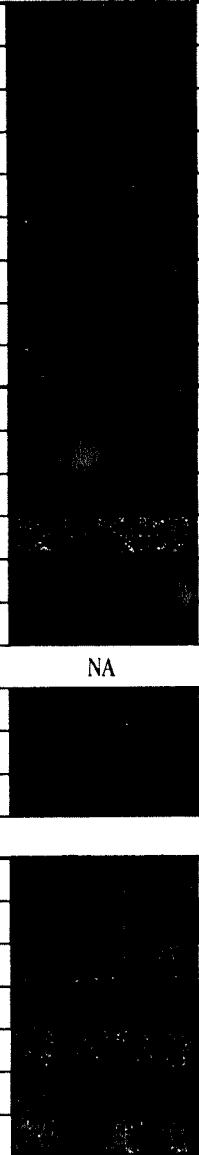
WEST SOUTH CENTRAL

Arkansas
Louisiana
Oklahoma
Texas

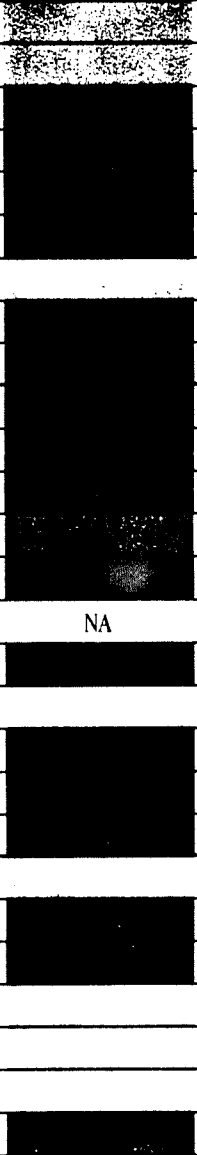


EAST SOUTH CENTRAL

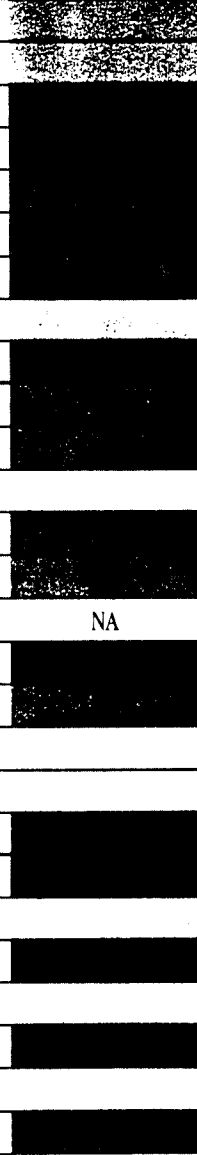
Alabama
Kentucky
Mississippi
Tennessee



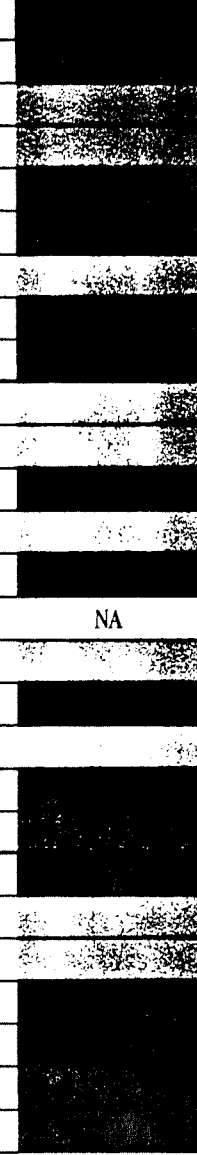
NA



NA



NA



NA

SOUTHWESTERN CENTRAL



MIDWEST

Illinois
 Indiana
 Michigan
 Minnesota
 Ohio
 Wisconsin



MID ATLANTIC

New Jersey
 New York
 Pennsylvania



SOUTH ATLANTIC

Delaware
 Florida
 Georgia
 Maryland
 North Carolina
 South Carolina
 Virginia
 West Virginia



NEW ENGLAND

Connecticut
 Maine
 Massachusetts
 New Hampshire
 Rhode Island
 Vermont



NA

NA

NA

NA

NA

This section summarizes how regions are currently performing in the Ameritrust/SRI Indicators of Economic Capacity. Detailed descriptions are provided for the Midwest, Pacific, New England, and West North Central regions, and brief summaries are included for the Mid Atlantic, Mountain, South Atlantic, West South Central, and East South Central regions. A special three-state comparison is also included. The regions and states described were selected because they illustrate the country's diversity and because they often receive rankings from more traditional indexes that differ widely from those based on our findings. Finally, scores for all U.S. states and regions are contained in the figures and tables that follow this chapter.*

Overall, the Ameritrust/SRI Indicators reveal regional strengths and weaknesses often overlooked by more traditional business climate indexes. The Midwest, for example, ranks much higher overall because of its strong showing on most of the labor force indicators and several of the accessible technology measures. The Pacific and New England regions are ranked highest because of across-the-board excellence on technology, labor, and capital indicators. The West North Central, despite low business costs that often place it among the highest-ranked regions on other indexes, scores consistently low on many of the Ameritrust/SRI Indicators — signaling possible weaknesses in the region's ability to adapt to today's new competitive economic environment. The same is true for the South Atlantic, West South Central, and East South Central regions. The Mid Atlantic, which is sometimes placed among the lowest-ranked regions on other indexes, actually scores well above the national average on the range of Ameritrust/SRI Indicators.

* We use the U.S. Bureau of Census regional definitions; however for the purposes of this report, the Midwest is defined as the East North Central states plus Minnesota.

DETAILED DESCRIPTIONS OF SELECTED REGIONS



NEW ENGLAND

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Two types of rankings are referred to throughout this chapter and in the illustration on page 12: (1) individual state and regional scores; (2) three-tier scale of regional performance.

Individual State and Regional Scores

For each of our 27 indicators, we have noted the scores that each state achieved. We have taken the additional step of aggregating state scores on each indicator by region. However, as stated previously, we have not attempted to combine scores for different indicators on either the state or regional level. To attempt such aggregation would require the assignment of weights to each indicator. As noted previously, weighting will vary, depending on industry and individual company requirements.

Regional Performance Scale

To enable business decision makers and public policymakers to quickly assess how their state and region measures up to other states and regions on each indicator, we have constructed a three-tier scale (top third, middle third, and bottom third). We believe that this type of scale helps to reduce the complexity of our findings without compromising their validity, and it may be helpful in revealing where regions are performing well and where they fall short.



ACCESSIBLE TECHNOLOGY

New England scores the highest among all nine regions on the range of accessible technology indicators. It earns a top ranking on four of the nine indicators and ranks second or third on three others. Specifically, New England has more science and engineering Ph.D.s per capita and more patents awarded per capita than any other region. The quality of its science and engineering faculty and its production of research articles per faculty member are exceeded only by the Pacific region.

The outstanding performance of two states affects regional totals significantly. Massachusetts and Connecticut both rank highly on university faculty measures, placing second and third behind California, respectively. Massachusetts has the greatest number of science and engineering Ph.D.s per capita, and Rhode Island and Connecticut rank second and third among U.S. states.

... New England has more science and engineering Ph.D.s per capita and more patents awarded per capita than any other region.

New England also receives impressive scores on the range of R&D indicators. It is the top region for total R&D and industry R&D in universities per capita. It ranks third in industry's own R&D per capita. The region's only low ranking is for state and local government R&D in universities, but this may occur because R&D is so strong on other indicators.

On virtually every accessible technology measure, New England seems very strong. The indicators suggest the presence of large university science and technology resources. They suggest extensive use of university resources by industry. And, although Massachusetts and Connecticut tend to lead the region, they show that other states such as Rhode Island (faculty quality; Ph.D.s per capita, and state and local government R&D), New Hampshire (patents per capita), and Vermont (faculty research articles and industry R&D in universities) are also strong on certain indicators.



SKILLED AND ADAPTABLE LABOR

New England is also one of the top performers in labor force indicators. It ranks in the top third of all U.S. regions on six of the ten measures. It is the top region in educational achievement as measured by SAT scores and in the percentage of 16 to 24 year old residents attending four-year colleges and universities. It ranks behind only the Pacific and Mountain regions in the percentage of residents with a high school diploma. New England has the third-lowest percentage of residents with less than a ninth grade education, further proof of a highly educated population. Moreover, it ranks a close second to the Pacific region in the percentage of residents with at least four years of college.

The region also exhibits high levels of educational spending. Expenditures per pupil are second only to the Mid Atlantic region. Connecticut, Massachusetts, Rhode Island, and Vermont all rank among the top 20 states in per pupil spending nationwide.

In contrast to the Pacific region, New England falls below the U.S. average in attendance of 16 to 24 year olds in both two-year and noncollege

vocational training programs. Many in the region attend four-year colleges and universities instead, making New England the top region in that category. Although the region's resources for developing a skilled and adaptable work force are configured differently than the Pacific region's, the results have been comparable. Both regions are strong on the range of labor force indicators.



CAPITAL AVAILABILITY

The New England region is one of the strongest U.S. regions in capital availability for business. It is by far the leader in the amount of venture capital funds per capita, with Massachusetts, Rhode Island, and Connecticut ranking first, second, and fourth nationwide on this indicator. The region's top ranking comes almost exclusively from these three states; Maine, New Hampshire, and Vermont have few if any venture capital resources.

In contrast, New England ranks well below the national average in total equity capital per capita. Like those of the Pacific region, several New England states score less than two-thirds of the U.S. average. No New England state even ranks among the top 20 states on

this indicator. However, the presence of substantial venture capital and the close proximity to the New York financial community may make the indicator less important for this region.

On indicators of state financial regulation and capital assistance, New England receives top rankings. Every state in the region allows branch banking, and all but New Hampshire allow statewide branch banking. None of the states except Rhode Island has interest rate ceilings on business loans. In capital assistance efforts, the New England states have been very active. Every state in the region has a loan guarantee program, and at least half have state equity/venture capital funds and business incubators.

In sum, New England seems to have a good capacity to meet the financing needs of its business community. Ample venture capital funds, supportive state regulatory climates, and targeted capital assistance programs together create a positive environment for business innovation and growth. The recent economic resurgence of states like Massachusetts may very well reflect the successful application of the region's capacity in this area.



MIDWEST

Illinois
Indiana
Michigan
Minnesota
Ohio
Wisconsin

... the amount of R&D being carried out in Midwestern industries is already very high, and mechanisms to link industry needs for R&D with academic research have been established.



ACCESSIBLE TECHNOLOGY

Midwestern states score very high on the indicators of the quality of science and engineering programs. Although the New England and Pacific regions score higher than the Midwest on the quality of the average faculty member, the high scores of these two regions come mostly from two states, Massachusetts and California. In contrast, nearly all Midwestern states score high on the faculty quality measure. The Midwest scores in the middle of our three-tier scale on research articles per faculty member and in the top third in the number of science and engineering Ph.D. graduates.

Midwestern colleges and universities, however, are in the bottom third in overall R&D funding, primarily because they receive less federal R&D funding. The amount of state (and local) R&D expenditures in the Midwest is mid-range, but industry expenditure on university R&D is low (nearly one-third the rate in the New England region). Five Midwestern states have established state programs to foster linkages between industry and university R&D, which may improve industry R&D funding of university research in the future.

18

Midwestern industries may be spending less in university R&D because they are conducting R&D in their own facilities. The Midwest scores second among all regions in industrial R&D per capita, and has the third-highest number of patents per capita.

These results suggest that the Midwest already has technological capacity to support new enterprises because of the presence of high-quality universities and colleges. Furthermore, the amount of R&D being carried out in Midwestern industries is already very high, and mechanisms to link industry needs for R&D with academic research have been established. However, if the high-quality faculty were provided with greater public R&D funding, the Midwest's capacity to provide accessible technology could be even greater.



SKILLED AND ADAPTABLE LABOR

The Midwest generally scores very well on the range of labor force indicators. It is in the middle third of our three-tier scale in the percentage with at least a high school education, but in the lower third in percentage with four or more years of college.

The Midwest scores in the top third on the measures of educational quality — per pupil and per capita expenditures for all levels of education. In performance, the ACT scores for two Midwestern states, Wisconsin and Minnesota, are the highest in the nation. The Midwest ranks in the top third in percentage of students attending college within their own states.

The Midwest ranks fourth among all regions in the proportion of 16 to 24 year olds who are currently enrolled in vocational education. Michigan has a particularly large number of individuals enrolled in noncollege training and in two-year college programs. These high enrollment rates are likely to produce a high-skill work force in the future.

These results indicate that the skill level of the existing Midwest work force is sound, that the region has a solid capacity to develop its human resources, and that the quality of its schools is high. The Midwest is higher than five other regions in the percentage of young people obtaining vocation-related training or schooling, higher than six other regions in the percentage attending two-year colleges, and higher than four other regions in the percentage attending four-year colleges.



WEST NORTH CENTRAL



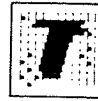
CAPITAL AVAILABILITY

The Midwest's rankings on the capital availability indicators are about average among U.S. regions. The region scores mid-range on equity in commercial banks, indicating a good capacity for providing financial capital to local firms. The Midwest has a relatively active venture capital market and scores mid-range in the size of venture capital funds per capita as well.

The indicators of state regulation show that the Midwest has a good bank regulatory environment: no Midwestern state has an interest rate ceiling on business loans, and five Midwestern states allow branch banking (although no Midwestern state allows statewide branch banking). With respect to state capital formation initiatives, all Midwestern states have established venture or equity capital funds, resulting in the highest score in the nation on this indicator. Half the Midwestern states have a loan guarantee program, and business incubator programs are substantially more common in the Midwest than in other regions.

Iowa
Kansas
Missouri
North Dakota
Nebraska
South Dakota

The West North Central region scores in the low to mid-range on most of the AmeriTrust/SRI labor force indicators.



ACCESSIBLE TECHNOLOGY

The West North Central region generally scores low on the various accessible technology indicators. The quality of its science and engineering faculty, for example, ranks ahead of only two other regions. Only the East South Central region is awarded fewer patents per capita, and the West North Central ranks last in research articles per faculty member. The region's supply of science and engineering Ph.D.s per capita is, however, close to the U.S. average, in large measure because Iowa is ranked fourth nationally on this indicator.

The region ranks somewhat better on the R&D measures. Although the amount of industry R&D in universities is low (in the bottom third of our three-tier scale comparing U.S. regions), the level of industry's own R&D per capita is fairly strong. The West North Central ranks a solid fourth on this indicator among all regions. The region also ranks the highest in state and local government R&D per capita, largely because of North Dakota and Kansas, which rank first and third nationally among states. This strength helps place the region in the mid-range in terms of total R&D in universities per capita.

From an initial reading of the indicators, the West North Central's accessible technology infrastructure seems to have some weaknesses. University output seems low in light of large state and local government R&D investments made in these institutions. Although the region ranks in the mid-range for total R&D in universities per capita, it drops to the bottom third when it comes to faculty quality, articles, and patents. This situation may indicate a need to examine the focus and commercialization capabilities of the region's research institutions.



SKILLED AND ADAPTABLE LABOR

The West North Central region scores in the low to mid-range on most of the AmeriTrust/SRI labor force indicators. It scores just below the U.S. average on both expenditures per pupil and total educational expenditures per capita. The region ranks fourth among the nine U.S. regions in percentage of residents with a high school diploma.

On other measures of educational attainment, the region falls farther below the U.S. average. It has the fourth-highest percentage of residents with

less than a ninth grade education. Moreover, the percentage of its residents with four or more years of college is lower than that of any other region except the East South Central.

The region also ranks very low on two of the three educational attendance indicators. It scores in the bottom third among U.S. regions for attendance of 16 to 24 year olds in noncollege vocational training and two-year college programs. To balance these scores, however, the region does rank highly on four-year college and university attendance. Only New England exceeds the West North Central region's scores for university attendance among 16 to 24 year olds.

The labor force indicators suggest possible weaknesses in the West North Central region. Although the region has the second highest percentage of four-year college and university attendance and some of the highest ACT scores in the nation, it ranks nearly last in percentage of residents with

four years of college education. This pattern suggests the possibility of a regional "brain drain." The relatively high percentage of residents with less than a ninth grade education may be another indication of this loss of regional talent. Since educational expenditures are not high and two-year and non-college vocational training programs may not be widely available, the capacity of the region to upgrade its "remaining" work force may be impaired, ultimately hindering the competitiveness of the region's economy.



CAPITAL AVAILABILITY

The West North Central region scores poorly on nearly every capital availability indicator. The lone exception is the measure of total equity capital per capita, on which every state in the region is well above the national average. At the same time, however, only the East South Central region has less venture capital funds per capita. Outside of Iowa and Kansas, there is little venture capital in the entire region.

The region's rankings on state regulatory climate are mixed. Although no state in the region has interest ceilings on business loans, only half allow branch banking and only South Dakota allows statewide branch banking.

The West North Central region also seems to have few capital assistance programs. Outside of limited efforts in Kansas and North Dakota, there is little evidence of state equity/venture capital funds, loan guarantee programs, or business incubators.

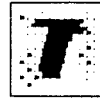
Although the region has a large amount of equity capital per capita, other indicators suggest weaknesses that might preclude effective use of these resources. The fact that only one state in the region allows statewide branch banking may hurt the ability of new and small businesses to get affordable financing. The lack of venture capital may also preclude significant regional investment in high-risk but potentially high-growth start-ups.



PACIFIC

Alaska
California
Hawaii
Oregon
Washington

The percentage of Pacific residents who have completed four years of college is the highest among all regions.



ACCESSIBLE TECHNOLOGY

The Pacific region scores highly on several accessible technology indicators. In fact, the region ranks first on indicators for science and engineering faculty quality and faculty research articles. It ranks second overall in science and engineering Ph.D. graduates. Although most states in the region score reasonably well, it is unquestionably California and Washington that are responsible for the region's top rankings. California ranks highest of any state on the faculty quality measure, while Washington has the fifth-best state score in the nation. California also ranks first in research articles per faculty member. Washington and Oregon help raise the regional ranking by scoring among the top 20 states on this indicator. Finally, California's top ten ranking in patents issued per capita places the region fourth among all U.S. regions.

The region's scores on different R&D indicators are mixed. Although, as might be expected, the Pacific region ranks second only to New England in terms of total R&D in universities per capita, it is a distant second (with the Mountain region a close third). The region ranks in the mid-range of our three-tier scale in terms of state and local government R&D in universities and industry's own R&D. It scores in the bottom third on the indicator of industry R&D in universities. The region also ranks fairly low on the presence of university-industry initiatives, with California and Washington responsible for most of this kind of activity.

These results demonstrate a tremendous capacity in western universities to provide accessible technology to the regional economy. They may also show that these resources are not being fully used. The mixed picture produced by the range of R&D indicators may signal a need to consider new ways to turn more of the region's knowledge and expertise into commercial applications. As in the Midwest, if high-quality faculty were provided with greater R&D funding, the Pacific region's capacity to provide accessible technology could be even greater.



SKILLED AND ADAPTABLE LABOR

The Pacific region does better than any other region on the labor force indicators. It ranks first on four and second on four of the measures of labor force skill and adaptability. It is the region with the highest educational attainment. The percentage of Pacific residents who have completed four years of college is the highest among all regions. Only the Mountain region ranks higher on the percentage of residents with a high school diploma and lower on the percentage of those with less than a ninth grade education.

In educational achievement, the Pacific also ranks among the top regions. New England is the only region that exceeds the Pacific's average SAT score.

Generally, educational expenditures are quite high. The Pacific region has the highest total educational expenditures per capita. Alaska, Washington, and Oregon — which rank first, third, and fifth among the states — lead the region. California is also among the top 15 states in expenditures per capita. The region, however, scores somewhat lower in expenditures per pupil, ranking only fourth in this category.

The region also ranks at or near the top in terms of current college and university attendance. The percentage of the region's 16 to 24 year olds attending two-year colleges is far greater than that of any other region, reflecting an impressive collection of state community college systems. Percentage participation in noncollege vocational training is second only to that in the Mountain region. Although the percentage attending Pacific four-year colleges and universities is the lowest of any U.S. region, much of this may be due to the presence of ample two-year and vocational training alternatives. In any case, the region has the highest percentage of college graduates among the regions.



CAPITAL AVAILABILITY

Not surprisingly, the Pacific region ranks very high on the indicator of venture capital funds per capita. Only New England can claim more venture capital per capita. California is the pacesetter for the region, ranking third nationwide on this indicator. Oregon and Washington, however, do contribute to the Pacific's high ranking; they rank among the top 15 states in the country.

On the indicator of total equity capital per capita, the picture is somewhat mixed. Every state in the Pacific region scores below the U.S. average except capital-rich Alaska. Oregon and Washington help bring down the regional average considerably, with totals that are less than two-thirds the U.S. average. California scores somewhat better, ranking 21st among the states in total equity per capita.

The indicators of state financial regulation suggest that the Pacific region has a very positive regulatory climate. Every state in the region allows statewide branch banking, and only Hawaii has an interest rate ceiling on business loans.

Finally, the indicators reveal few state efforts to assist businesses with their capital needs. With the exception of the loan guarantee programs established in California, Hawaii, and Oregon and an equity/venture capital fund in Alaska, states in the Pacific region have not been active in offering capital assistance to business. In some states that seem to have comparatively low levels of investment capital (such as Oregon and Washington), state government may need to take more action. In others (such as California), the strength and variety of capital markets may mean that state action is less important.



MID ATLANTIC

*New Jersey
New York
Pennsylvania*

The Mid Atlantic region ranks very high on the capacity for accessible technology, above average in terms of skilled and adaptable labor, and among the highest on the capital availability measures. Overall, the region appears to have many of the elements of a strong economic infrastructure in place. Considering the recent economic difficulties of some Mid Atlantic states, however, the application of this capacity may be uneven.



MOUNTAIN

*Arizona
Colorado
Idaho
Montana
New Mexico
Utah
Wyoming*

Scores for the Mountain region are mixed. It ranks among the top regions for skilled and adaptable labor. In contrast, the Mountain states rank only about average in the capacity for accessible technology. The region receives below-average ratings on capital availability indicators.



SOUTH ATLANTIC

*Delaware
Florida
Georgia
Maryland
North Carolina
South Carolina
Virginia
West Virginia*

The South Atlantic region ranks at or below the U.S. average on nearly every AmeriTrust/SRI indicator. It ranks among the middle third of U.S. regions for accessible technology, scoring fairly well on measures of faculty quality and volume of research articles. However, the region ranks among the lower third for skilled and adaptable labor and capital availability, scoring very low on the educational expenditure and commercial bank capital indicators.



WEST SOUTH CENTRAL

*Arkansas
Louisiana
Oklahoma
Texas*

The West South Central region ranks among the middle and lower third of U.S. regions on most AmeriTrust/SRI accessible technology and skilled and adaptable labor indicators. With Texas and Oklahoma ranking among the top states in commercial bank capital per capita, and with Texas' above-average level of venture capital funds, the region scores in the mid-range among U.S. regions on the capital availability indicators.



EAST SOUTH CENTRAL

*Alabama
Kentucky
Mississippi
Tennessee*

The East South Central region scores in the lower third among U.S. regions on nearly all AmeriTrust/SRI indicators. On most of the accessible technology and skilled and adaptable labor force indicators, it ranks at or near the bottom compared with other U.S. regions. The region ranks somewhat higher on selected capital availability indicators, but overall it scores very low on these measures also.



A CLOSER LOOK AT THREE STATES

The state of South Dakota has been ranked high on some indexes and the states of New York and Michigan have been ranked low on the same measures. The purpose of focusing on these states is to suggest that things may not always be what they seem — that true regional capacity for competitiveness may be more than low taxes, low unionization, and low labor costs.

SOUTH DAKOTA

South Dakota has been chosen by some as having one of the best overall manufacturing business climates in the nation. The following reasons are usually given: its unionization rate is very low, as are its wage levels, workers' compensation benefits, and state taxes. The state's energy costs are the lowest in the nation, and environmental costs to business are kept very reasonable.

The AmeriTrust/SRI indicators tell a very different story. Labor force indicators show that South Dakota's educational expenditures are well below the national average, and its two-year college enrollment is the lowest in the country. The state has a fairly good record of educational achievement as measured by ACT scores but is still only third best in its region.

South Dakota does have a very high percentage of its 16 to 24 year old residents attending four-year colleges, but it ranks only 35th in population with four or more years of college education. This pattern may or may not indicate a "brain drain," but it certainly raises questions about the state's high ranking overall on other indexes.

On the AmeriTrust/SRI accessible technology indicators, South Dakota



MICHIGAN

Michigan is identified by some as an unattractive manufacturing business climate. The 1986 Grant Thornton index actually ranks the state last among the 48 contiguous United States. The reasons cited include high state taxes, high percentage of unionized workers, and generous workers' compensation benefits.

The AmeriTrust/SRI indicators portray Michigan's capacity for economic growth in a more realistic perspective. The skilled and adaptable labor force indicators show that the educational attainment of Michigan's population (measured by the percentages over 25 years of age having completed grade eight or less, high school, and at least four years of college) places the state in the middle tier among states on these indicators. Although scoring slightly below the national average for 16 to 24 year olds attending four-year colleges or universities, Michigan ranks among the top ten states for both non-college vocational and two-year college enrollment in this age group.

also receives consistently low ratings. The quality of its university science and engineering faculty and faculty production of research articles are among the lowest in the nation. The number of science and engineering Ph.D.s per capita is also very small. R&D levels in industry and in universities, and the number of patents issued per capita, are again among the lowest in the nation.

With regard to capital availability, the South Dakota picture is mixed. Although the state has the third-highest level of equity capital per capita in the nation, it has few venture capital funds available for start-ups. The state regulatory climate is favorable, but little if any state capital assistance is available.

In sum, South Dakota's high ranking on more traditional measures of economic climate may be misrepresenting the state's real capacity to meet the changing needs of some important types of manufacturing enterprises. Although some traditional manufacturing companies may find the state a good place to locate branch plants, the analysis presented here seems to indicate that a broader view of the state's strengths and weaknesses in economic capacity could help it develop in new ways.

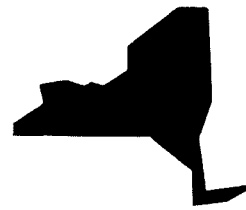
Although state taxes are high, so are educational expenditures. Michigan ranks among the top 15 states in both expenditure per pupil at the K-12 level and overall educational expenditures per capita. The state appears to be benefiting to some extent from this investment: in educational achievement, it ranks among the top half of the 28 states reporting ACT scores.

Michigan's performance on the AmeriTrust/SRI accessible technology indicators is mixed. The quality and research output of the state's science and engineering faculty are among the 20 best in the country. On the other hand, scores on the university-based R&D indicators, as well as that on science and engineering Ph.D.s per capita, are at or below the national average. Reflecting the state's strong industry base, only five states have been issued more patents per capita than Michigan. Michigan's industry could apparently use its universities more, which is something the state government has recently been attempting to encourage.

On each of the capital availability indicators, Michigan ranks in the middle or upper third tier when compared with

other states. The state scores well below the national average on capital in commercial banks per capita and venture capital funds per capita, but seems to have a supportive regulatory climate. No interest rate ceiling exists, branch banking is allowed, and state venture capital funds and loan guarantee programs are present.

In sum, the Michigan story is clearly mixed — revealing both strengths and weaknesses in the state's economic infrastructure. However, the AmeriTrust/SRI Indicators suggest that Michigan is better prepared than many states to meet the technology, labor, and capital needs of its economy.



NEW YORK

New York, like Michigan, has been identified as having one of the less attractive manufacturing business climates in the nation. The reasons often cited are that taxes, unionization, and energy costs are all very high in comparison with other states.

Again, the AmeriTrust/SRI indicators present a very different picture. On the labor force indicators, the state has a high percentage of its 16 to 24 year olds attending four-year colleges and universities, the eighth best in the nation. The state also seems to retain its most talented workers or to attract highly educated labor from other regions. It has the 12th-highest percentage of residents with four or more years of college education.

As in Michigan, New York's state taxes are high, but so are its educational expenditures. New York spends the second-highest amount per pupil among states nationwide. The result appears to be positive: the state is also among the highest in educational achievement as measured by the SAT.

New York's performance on the AmeriTrust/SRI accessible technology indicators is also quite high. The quality

and research output of the state's science and engineering faculty are among the ten best in the country. The number of science and engineering Ph.D.s per capita is also very high compared with other states. Not surprisingly, New York's total amount of R&D in universities per capita is among the ten highest nationwide.

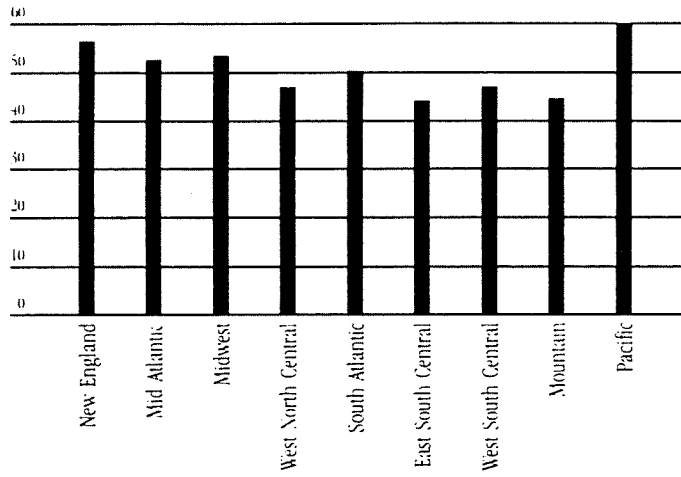
New York is also the investment capital of the United States, as measured by total equity capital per capita. Moreover, it ranks fourth in terms of venture capital per capita, far ahead of most states. The state's regulatory climate is also good, and state venture capital funds, loan guarantee programs, and business incubators are all present.

In sum, New York seems far better positioned to meet the challenges of economic change, to foster not only established enterprises but also fledgling start-ups, than more traditional indicators would suggest. It appears to have impressive economic capacity in areas that have become essential to state and regional competitiveness.

APPENDIX
ACCESSIBLE TECHNOLOGY
INDICATORS

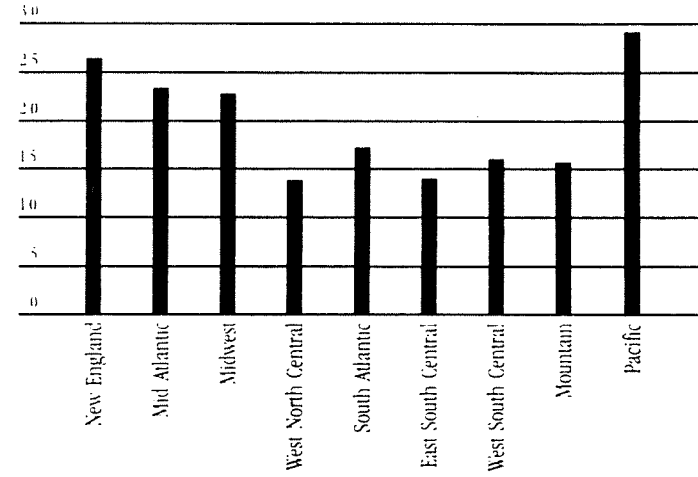
QUALITY OF SCIENCE AND ENGINEERING FACULTY

Quality Index



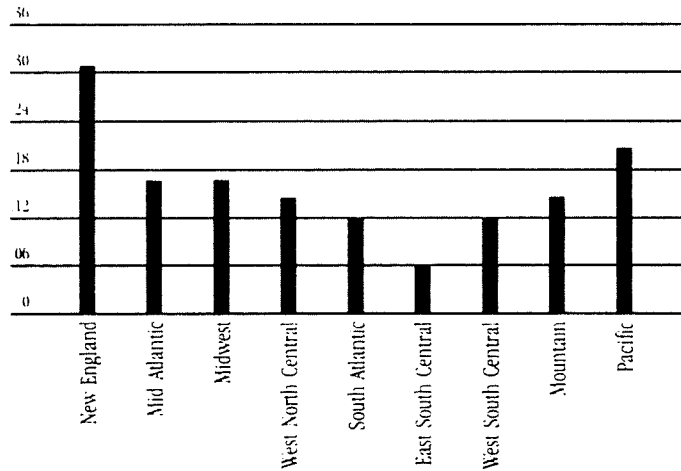
FACULTY RESEARCH ARTICLES

Articles Per Faculty



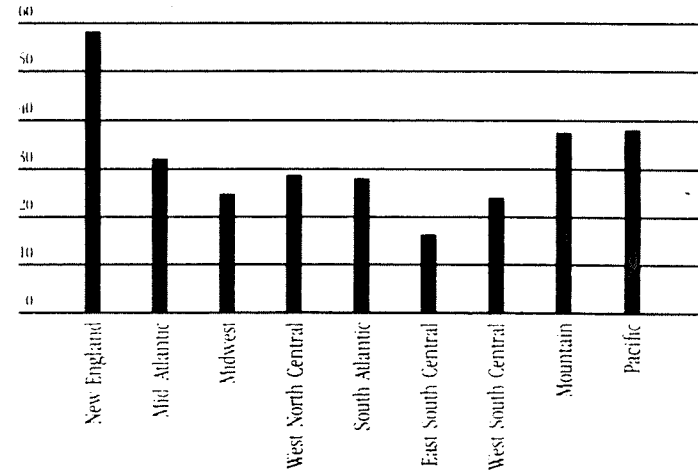
SCIENCE AND ENGINEERING Ph.D. GRADUATES

Per Capita (x 1,000)



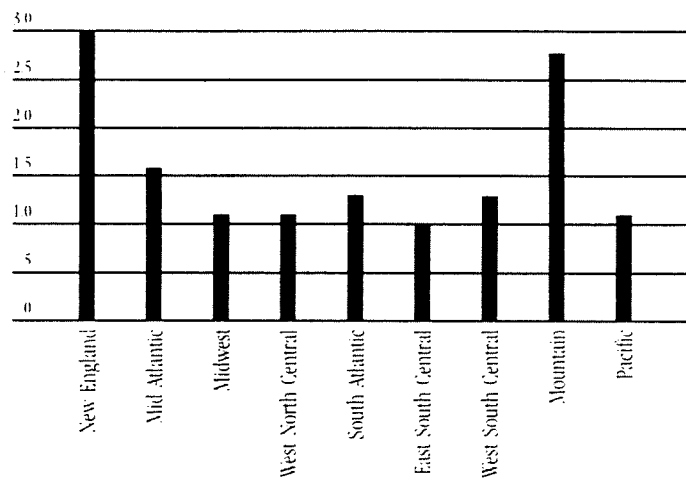
TOTAL RESEARCH AND DEVELOPMENT IN UNIVERSITIES

Dollars Per Capita



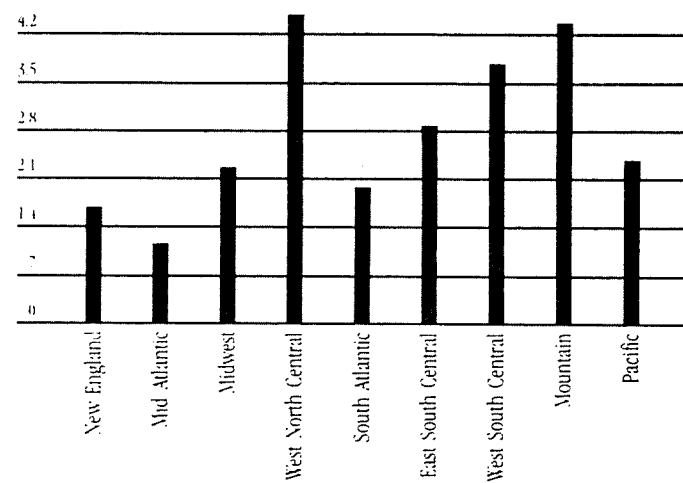
INDUSTRY RESEARCH AND DEVELOPMENT IN UNIVERSITIES

Dollars Per Capita



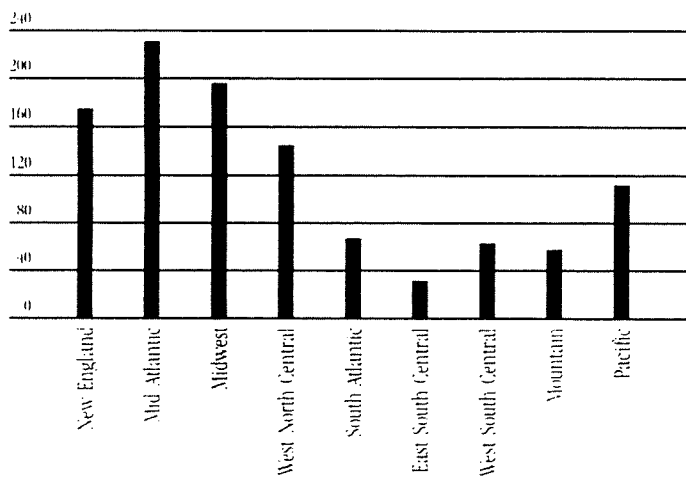
STATE AND LOCAL GOVERNMENT RESEARCH AND DEVELOPMENT IN UNIVERSITIES

Dollars Per Capita



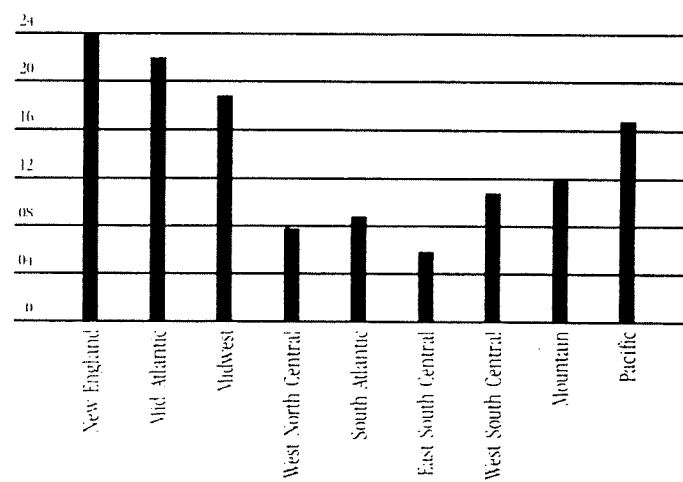
INDUSTRY'S OWN RESEARCH AND DEVELOPMENT

Dollars Per Capita



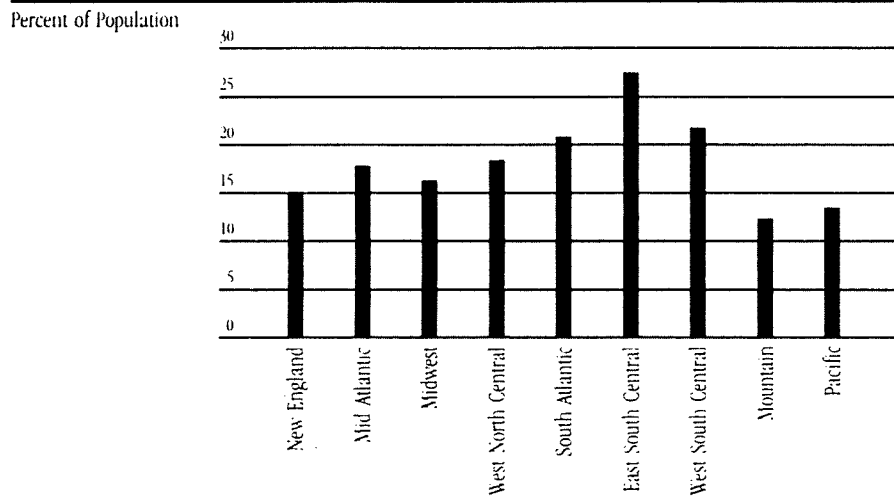
NUMBER OF PATENTS ISSUED

Patents Per Capita

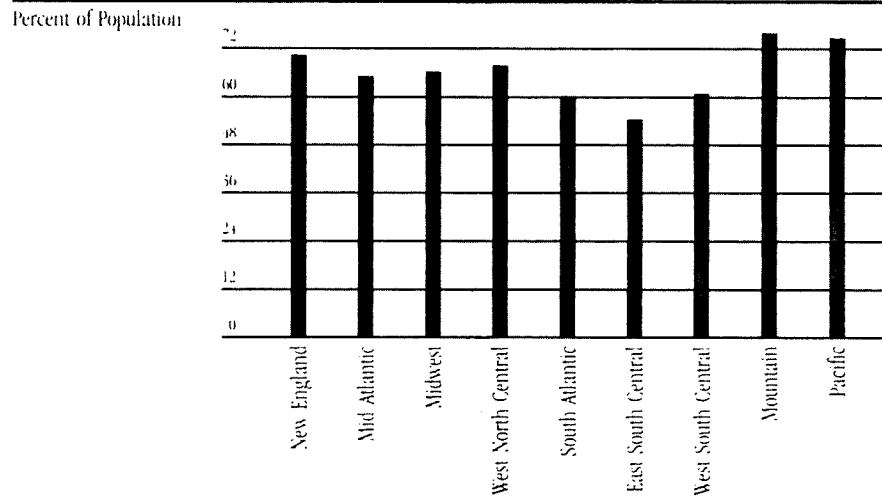


APPENDIX
SKILLED AND ADAPTABLE
LABOR INDICATORS

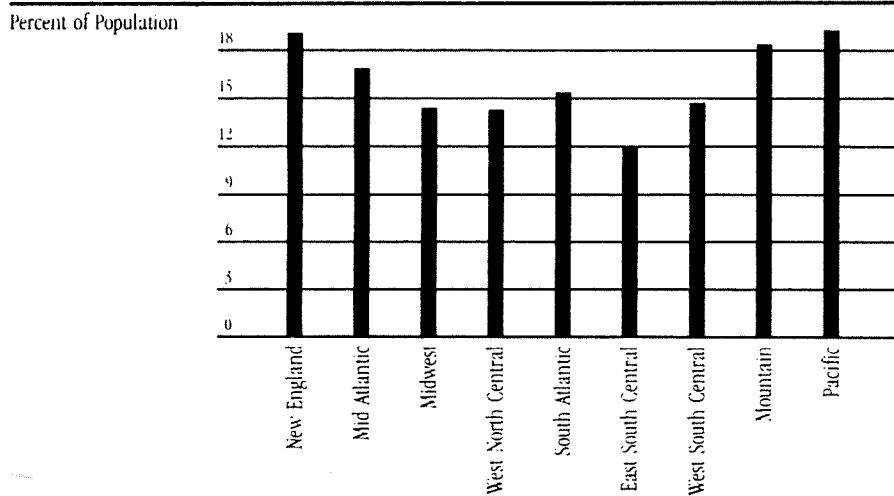
PERCENTAGE OF POPULATION OVER 25 WITH EDUCATION LEVEL GRADE 8 OR LESS



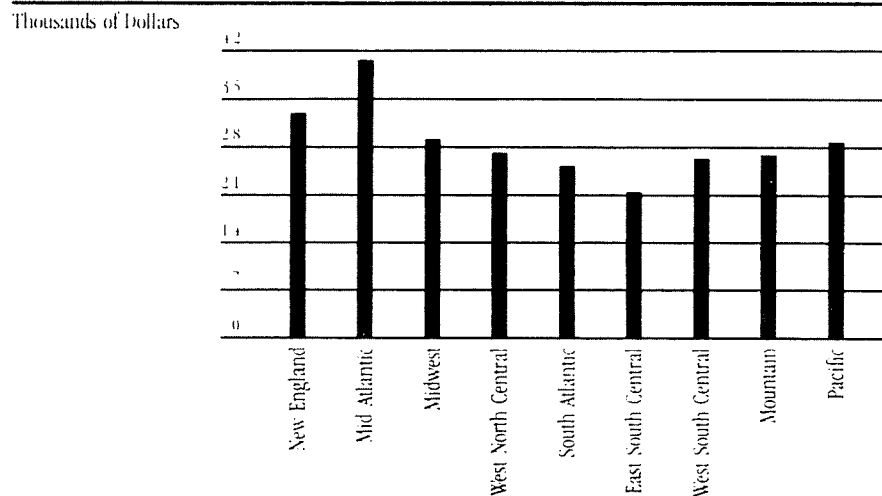
PERCENTAGE OF POPULATION OVER 25 WITH EDUCATION LEVEL 4 YEARS OF HIGH SCHOOL OR MORE



PERCENTAGE OF POPULATION OVER 25 WITH EDUCATION LEVEL 4 YEARS OF COLLEGE OR MORE

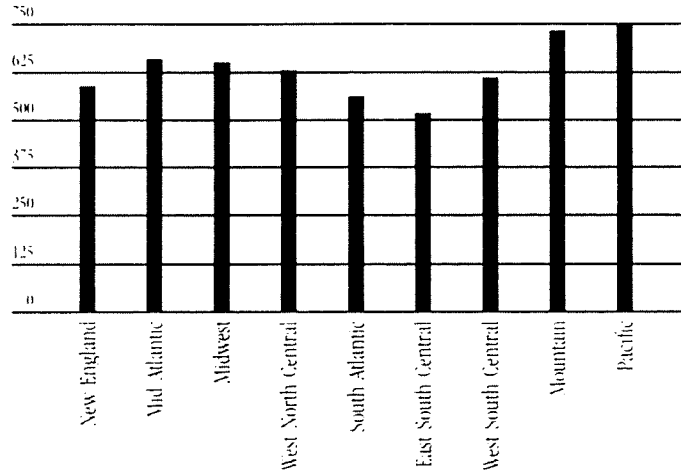


EXPENDITURES PER PUPIL ON K-12 EDUCATION



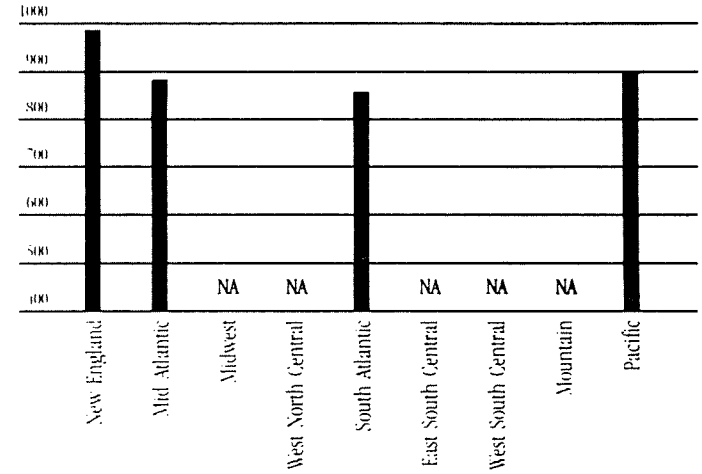
STATE AND LOCAL TOTAL EDUCATION EXPENDITURES

Dollars Per Capita



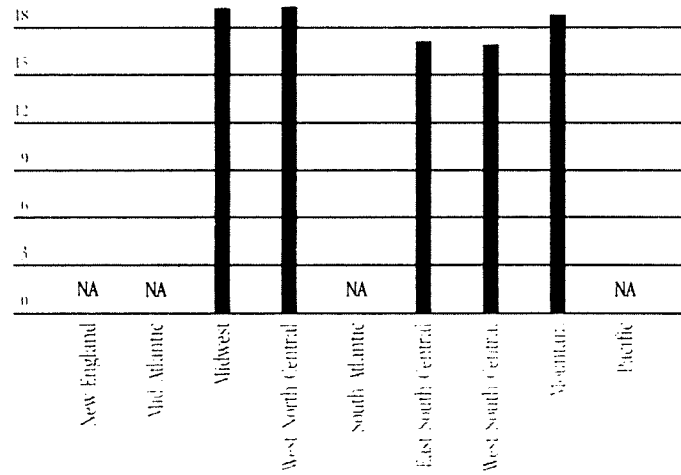
AVERAGE SAT SCORE

Average Score



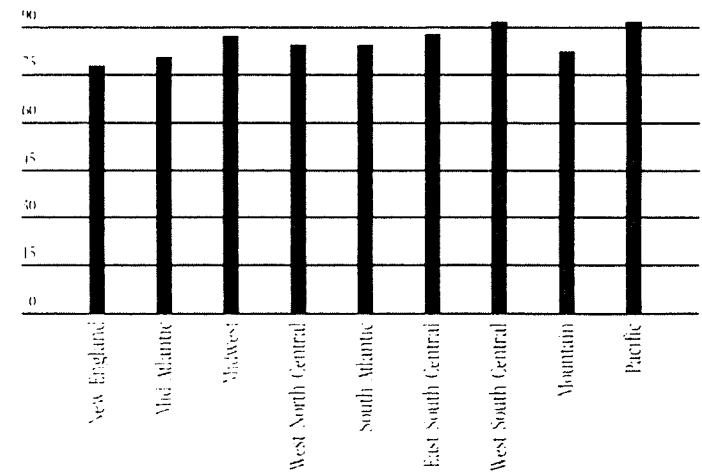
AVERAGE ACT SCORE

Average Score



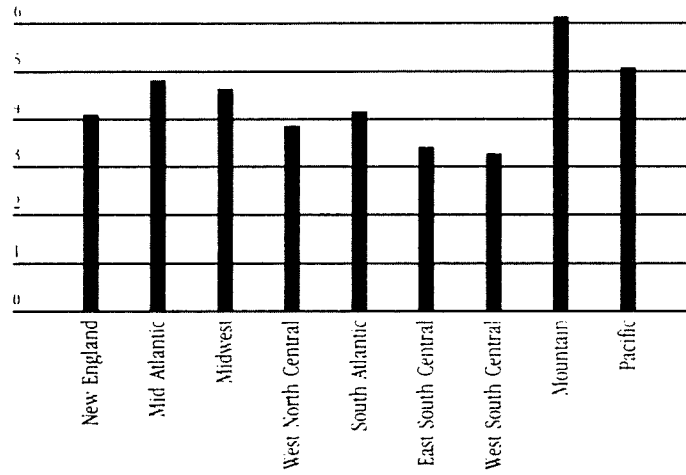
STATE'S COLLEGE STUDENTS ATTENDING SCHOOL WITHIN THE STATE

Percent



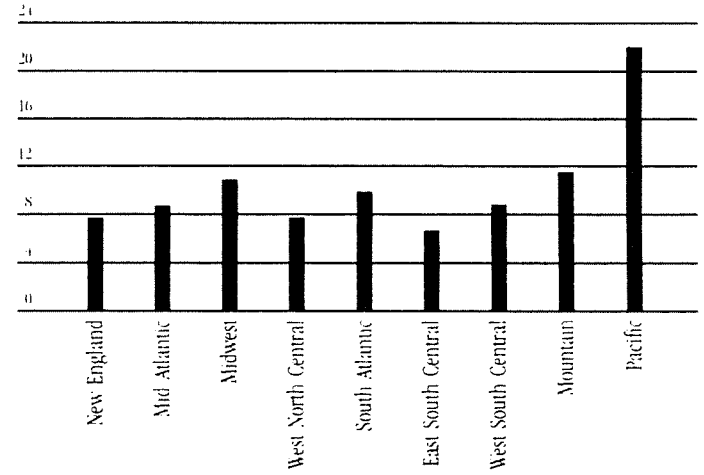
16-24 YEAR OLDS ATTENDING NONCOLLEGE VOCATIONAL SCHOOL

Percent



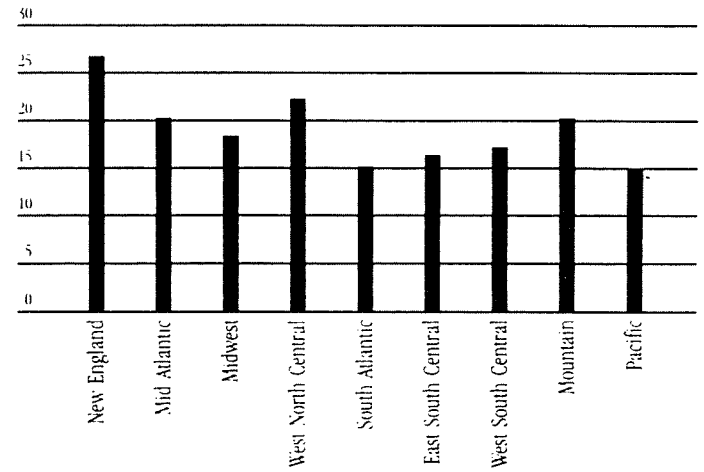
16-24 YEAR OLDS ATTENDING A TWO-YEAR COLLEGE

Percent



16-24 YEAR OLDS ATTENDING A FOUR-YEAR COLLEGE

Percent



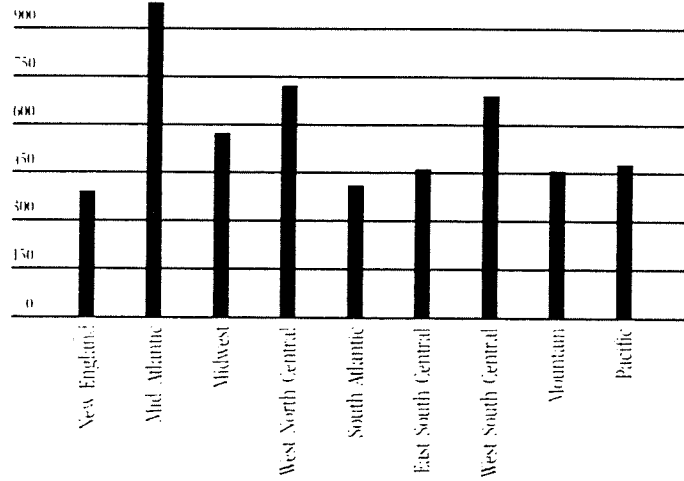
APPENDIX

CAPITAL AVAILABILITY

INDICATORS

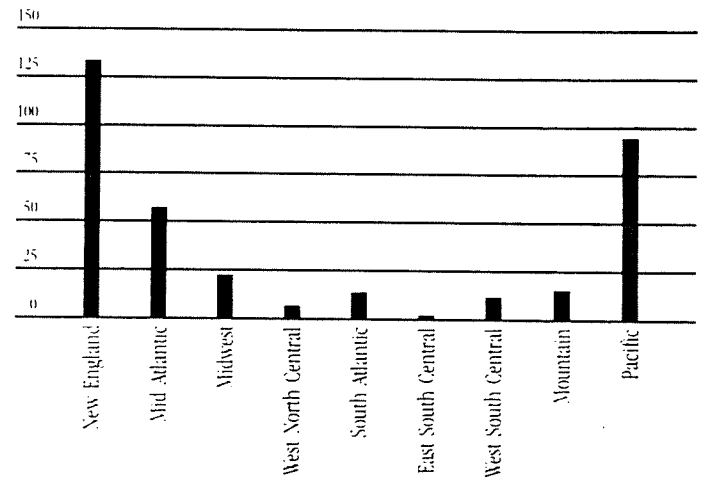
TOTAL EQUITY CAPITAL IN COMMERCIAL BANKS

Thousands of Dollars
Per Capita








VENTURE CAPITAL FUNDS

Dollars Per Capita



APPENDIX
ACCESSIBLE TECHNOLOGY
INDICATORS

		Quality of Science and Engineering Faculty (a)	Research Articles per Faculty (b)	Science and Engineering Ph.D. Graduates (per Capita x 1,000) (c)	Total R&D in Universities (\$ per Capita) (d)	Industry R&D in Universities (\$ per Capita) (e)	State and Local R&D in Universities (\$ per Capita) (f)	Industry's Own R&D (\$ per Capita) (g)	Number of Patents Issued per Capita (h)	University-Industry Initiatives (i*)
UNITED STATES	Average	52.9	2.18	0.16	31.3	1.4	2.5	152.6	0.15	0.5
NEW ENGLAND	Average	57.8	2.68	0.31	58.9	3.0	1.7	178.3	0.24	0.3
	Connecticut	58.4	2.66	0.27	48.7	0.9	1.3		0.36	1
	Maine	45.0	0.70	0.01	16.9	1.0	2.7		0.06	0
	Massachusetts	60.1	3.03	0.42	81.7	5.1	1.0		0.24	1
	New Hampshire	43.7	1.16	0.14	29.2	0.5	1.7		0.20	0
	Rhode Island	52.3	1.75	0.41	46.5	2.3	4.9		0.13	0
	Vermont	45.3	2.47	0.09	36.4	2.6	2.8		0.15	0
MID ATLANTIC	Average	53.5	2.35	0.17	32.3	1.6	1.2	233.2	0.22	0.7
	New Jersey	52.9	1.66	0.14	14.1	0.5	1.1		0.37	0
	New York	54.2	2.66	0.20	42.1	1.6	1.8		0.17	1
	Pennsylvania	52.5	2.15	0.14	29.0	2.2	0.4		0.18	1
MIDWEST	Average	54.3	2.30	0.17	25.6	1.1	2.3	197.5	0.19	0.8
	Illinois	56.7	2.41	0.21	24.6	0.5	1.0		0.20	1
	Indiana	56.0	2.43	0.23	22.5	1.8	1.8		0.17	1
	Michigan	53.5	1.90	0.13	24.8	1.5	1.8		0.20	1
	Minnesota	57.8	3.06	0.13	35.5	1.2	3.7		0.22	1
	Ohio	46.4	1.66	0.13	18.9	1.0	1.5		0.19	1
	Wisconsin	58.3	3.17	0.22	39.8	1.1	7.0		0.16	0
WEST NORTH CENTRAL	Average	47.5	1.41	0.15	29.4	1.1	4.5	148.7	0.08	0.5
	Iowa	50.2	1.74	0.25	38.2	1.3	5.5		0.10	1
	Kansas	44.9	1.27	1.14	23.4	0.6	8.0		0.08	1
	Missouri	48.8	1.10	0.12	26.3	1.0	2.0		0.09	1
	North Dakota	34.0	1.30	0.15	39.3	2.0	18.5		0.04	0
	Nebraska	46.0	2.04	0.11	33.4	1.3	1.1		0.07	0
	South Dakota	36.0	0.50	0.01	16.8	1.2	0.9		0.04	0
EAST SOUTH CENTRAL	Average	44.5	1.43	0.06	16.7	1.0	2.9	32.2	0.06	0.0
	Alabama	44.1	1.37	0.05	18.0	1.1	2.5		0.05	0
	Kentucky	43.8	1.42	0.05	13.0	1.0	2.7		0.07	0
	Mississippi	32.7	1.20	0.02	19.5	0.9	5.8		0.02	0
	Tennessee	46.6	1.50	0.10	17.1	1.1	1.8		0.08	0

Quality of Science and Engineering Faculty (a)	Research Articles per Faculty (b)	Science and Engineering Ph.D. Graduates (per Capita x 1,000) (c)	Total R&D in Universities (\$ per Capita) (d)	Industry R&D in Universities (\$ per Capita) (e)	State and Local R&D in Universities (\$ per Capita) (f)	Industry's Own R&D (\$ per Capita) (g)	Number of Patents Issued per Capita (h)	University-Industry Initiatives (i*)	
50.3	1.74	0.12	29.0	1.3	2.0	67.8	0.09	0.7	Average
47.4	2.29	0.22	29.8	1.8	1.1		0.38	0	Delaware
49.6	1.64	0.07	16.0	0.8	0.9		0.09	0	Florida
48.6	2.17	0.08	30.2	2.9	0.8		0.06	1	Georgia
54.2	2.19	0.21	82.2	0.3	1.4		0.15	1	Maryland
54.9	1.61	0.17	27.5	0.8	5.1		0.07	1	North Carolina
42.1	1.30	0.07	14.8	1.0	0.3		0.07	1	South Carolina
49.6	1.75	0.10	19.3	1.8	3.0		0.09	0	Virginia
41.9	0.55	0.05	11.1	0.4	4.1		0.06	1	West Virginia
47.8	1.64	0.12	25.3	1.3	3.8	65.8	0.11	0.3	Average
41.6	1.05	0.02	15.6	0.8	4.2		0.04	0	Arkansas
45.0	1.42	0.06	22.2	1.2	6.7		0.06	0	Louisiana
40.4	0.85	0.23	22.0	1.4	0.8		0.18	0	Oklahoma
50.7	1.93	0.13	28.3	1.4	3.6		0.12	1	Texas
45.7	1.61	0.15	38.6	2.8	4.4	61.7	0.12	0.3	Average
48.8	2.08	0.12	34.9	3.3	6.3		0.17	1	Arizona
51.4	1.94	0.20	44.6	3.5	2.8		0.15	0	Colorado
36.2	0.90	0.06	18.3	1.7	1.8		0.07	0	Idaho
38.5	1.02	0.08	25.7	1.7	7.2		0.05	0	Montana
32.0	1.25	0.02	21.1	3.0	0.4		0.13	0	Nevada
28.3	0.82	0.14	54.2	2.5	5.5		0.07	0	New Mexico
48.2	1.49	0.25	52.2	2.2	6.5		0.12	1	Utah
41.1	0.95	0.17	28.7	2.6	0.6		0.07	0	Wyoming
60.0	2.98	0.21	39.0	1.1	2.4	114.3	0.17	0.4	Average
45.0	1.08	0.01	86.1	6.5	7.3		0.02	0	Alaska
62.3	3.32	0.23	38.3	0.8	0.9		0.20	1	California
48.4	1.38	0.15	43.6	0.3	14.4		0.03	0	Hawaii
50.9	2.03	0.15	33.7	2.1	5.5		0.11	0	Oregon
57.4	2.27	0.15	39.8	1.9	5.7		0.12	1	Washington

SOUTH ATLANTIC



WEST SOUTH CENTRAL



MOUNTAIN



PACIFIC



Sources: (a) National Research Council (1982 a, b, c).

Faculty quality measure is a statistical construct drawn from peer survey results; the sample mean is 50 and the standard deviation is 10. Higher numbers indicate better ratings.

(b) National Research Council (1982 a, b, c). Research articles per faculty measure is based on articles in biological, mathematical, physical sciences, and engineering journals.

(c) National Research Council (1982 a, b, c). Science and Engineering Ph.D. graduates score is multiplied by 1,000 for easier comparison.

(d) National Science Foundation (1984). Total R&D figure includes federal, state and local, industry, university, and miscellaneous sources.

(e) National Science Foundation (1984).

(f) National Science Foundation (1984).

(g) National Science Foundation (1985).






(h) U.S. Patent Office (1983).





(i) SRI (1984).

* 1 = yes, 0 = no

APPENDIX

SKILLED AND ADAPTABLE
LABOR INDICATORS

		Percentage of Population Over 25 with Various Educational Levels (a)			Expenditure /Pupil (K-12) (\$ per Pupil) (b)	State and Local Total Educational Expenditure (\$ per Capita) (c)		Average SAT Score (d)	Average ACT Score (e)	Percentage of State's College Students Attending Within State (f)	Number Attending Various Institutions as Percent of Those 16 to 24 Years Old		
		Grade 8 or Less	At Least 4 Years HS	At Least 4 Years College		Noncollege Vocational Training (g)	2-Year College (h)				4-Year College or University (i)		
UNITED STATES	Average	18.35	66.30	16.30	2,948	643.61	880	18.62	87	4.56	11.40	18.68	
NEW ENGLAND	Average	15.28	70.70	19.25	3,312	590.80	900	NA	78	4.18	7.95	27.16	
	Connecticut	16.01	70.50	21.20	3,636	593.19	904	NA	72	6.97	8.31	21.36	
	Maine	16.99	68.50	14.00	2,458	521.55	892	NA	75	2.83	2.88	23.66	
	Massachusetts	13.59	72.70	20.00	3,378	592.83	896	NA	85	3.87	9.26	30.34	
	New Hampshire	14.88	72.00	18.40	2,750	547.09	931	NA	65	0.74	5.75	25.32	
	Rhode Island	20.48	60.70	15.30	3,570	644.88	885	NA	81	4.06	8.20	32.03	
	Vermont	17.11	70.50	19.50	3,051	685.85	907	NA	68	0.79	5.42	26.85	
MID ATLANTIC	Average	18.19	65.97	17.10	4,112	659.96	888	NA	82	4.87	8.80	20.69	
	New Jersey	17.57	67.80	18.60	4,007	674.31	876	NA	70	4.67	9.40	15.40	
	New York	18.43	66.20	18.70	4,686	723.78	894	NA	86	4.50	9.58	23.83	
	Pennsylvania	18.22	64.50	13.80	3,329	556.60	887	NA	83	5.85	7.27	19.29	
MIDWEST	Average	16.80	67.50	14.70	2,972	655.22	NA	19.20	87	4.73	11.05	18.77	
	Illinois	19.45	65.00	14.50	3,100	609.22	NA	18.70	87	2.93	16.47	16.42	
	Indiana	16.81	65.90	12.40	2,414	602.83	864	NA	86	3.10	4.23	21.44	
	Michigan	14.78	68.20	15.20	3,307	747.80	NA	18.80	90	7.28	13.40	17.11	
	Minnesota	17.28	72.40	16.70	3,085	712.82	NA	20.20	81	9.07	6.38	21.80	
	Ohio	15.00	67.40	14.80	2,676	591.53	NA	19.20	88	5.14	8.88	19.11	
	Wisconsin	17.96	70.00	14.90	3,237	743.43	NA	20.40	90	1.22	10.44	21.05	
WEST NORTH CENTRAL	Average	18.88	68.53	14.66	2,796	625.79	NA	19.31	85	3.91	7.96	22.43	
	Iowa	17.00	71.20	14.10	3,095	715.67	NA	20.20	84	1.75	8.46	21.48	
	Kansas	15.10	72.30	15.70	3,058	668.53	NA	19.20	86	6.64	10.51	22.68	
	Missouri	22.03	63.70	14.00	2,468	524.32	NA	18.80	86	4.50	7.54	20.97	
	Nebraska	14.47	73.80	16.10	2,984	678.60	NA	20.10	87	3.31	8.32	25.67	
	North Dakota	24.66	66.50	15.20	2,853	733.22	NA	17.90	78	1.33	6.61	23.46	
	South Dakota	21.85	68.50	14.20	2,486	598.72	NA	19.20	73	3.15	0.61	27.29	
EAST SOUTH CENTRAL	Average	27.88	54.82	12.05	2,054	522.70	NA	17.31	88	3.46	6.93	16.72	
	Alabama	24.44	56.70	12.60	2,177	522.70	NA	17.40	89	4.26	6.81	17.22	
	Kentucky	32.82	51.90	11.00	2,100	524.96	NA	17.90	86	4.18	4.96	16.89	
	Mississippi	26.60	55.10	13.00	1,849	553.49	NA	15.60	92	0.61	9.29	13.61	
	Tennessee	27.58	55.40	11.90	2,027	478.52	NA	17.70	88	3.83	7.26	17.96	

Grade 8 or Less	Percentage of Population Over 25 with Various Educational Levels (a)		Expenditure /Pupil (K-12) (\$ per Pupil) (b)	State and Local Total Educational Expenditure (\$ per Capita) (c)			Average SAT Score (d)	Average ACT Score (e)	Percentage of State's College Students Attending Within State(f)	Number Attending Various Institutions as Percent of Those 16 to 24 Years Old			
	At Least 4 Years HS	At Least 4 Years College		Noncollege Vocational Training (g)	2-Year College (h)	4-Year College or University (i)							
21.25	61.28	15.58	2,559	567.42	862	NA	85	4.22	10.05	15.15	Average	SOUTH ATLANTIC 	
15.21	67.80	16.30	3,456	753.48	902	NA	71	6.13	6.51	21.03	Delaware		
17.47	67.20	14.70	2,680	527.41	890	NA	87	7.30	13.61	13.02	Florida		
24.08	56.50	15.30	2,169	530.78	822	NA	83	7.22	4.84	14.33	Georgia		
17.38	66.70	19.80	3,445	688.34	897	NA	76	2.26	13.37	16.83	Maryland		
24.08	55.30	13.40	2,162	612.08	827	NA	94	0.97	11.20	15.76	North Carolina		
25.31	54.00	14.20	2,017	603.83	803	NA	89	1.64	7.08	14.58	South Carolina		
21.51	62.50	19.20	2,620	627.55	894	NA	82	3.03	11.11	16.88	Virginia		
27.51	56.60	10.50	2,764	583.25	NA	17.40	87	2.73	3.95	21.57	West Virginia		
22.15	60.89	14.93	2,672	610.59	NA	17.16	93	3.35	9.03	17.56	Average		WEST SOUTH CENTRAL 
27.36	54.90	9.70	1,971	521.80	NA	17.60	84	3.51	3.91	15.66	Arkansas		
24.41	58.00	13.40	2,739	623.98	NA	16.60	91	6.62	1.83	19.56	Louisiana		
17.93	66.70	15.70	2,805	637.49	NA	17.60	91	3.86	10.45	20.32	Oklahoma		
21.60	61.40	16.00	2,731	614.46	866	NA	95	2.25	11.61	16.67	Texas		
12.40	75.06	18.76	2,748	734.21	NA	18.93	83	6.12	11.81	20.69	Average	MOUNTAIN 	
14.57	72.30	16.80	2,524	730.83	NA	18.70	91	8.81	23.53	18.24	Arizona		
10.97	78.10	23.00	3,171	747.44	NA	19.70	83	7.85	8.89	21.56	Colorado		
13.55	72.80	16.10	2,052	587.02	NA	18.90	74	1.99	6.94	18.91	Idaho		
13.49	75.40	17.30	3,289	714.95	NA	19.40	78	4.62	3.14	24.10	Montana		
9.64	75.50	15.10	2,613	584.98	NA	18.70	78	7.64	8.21	35.27	Nevada		
18.22	68.20	17.30	2,901	795.28	NA	17.60	76	5.14	4.89	21.03	New Mexico		
7.18	80.30	20.30	2,013	755.53	NA	18.80	88	2.52	8.15	32.37	Utah		
9.93	77.80	17.20	4,045	1013.58	NA	19.30	78	1.57	15.25	11.54	Wyoming		
13.56	74.25	19.51	2,934	749.38	897	NA	93	5.13	22.23	15.05	Average		PACIFIC 
8.68	82.80	22.40	7,325	1896.32	NA	18.20	52	4.48	16.77	13.17	Alaska		
14.20	73.60	19.80	2,733	716.00	897	NA	96	5.65	24.52	14.81	California		
16.51	73.40	20.30	3,239	642.97	869	NA	79	3.24	11.36	16.49	Hawaii		
11.83	74.70	17.20	3,504	788.39	907	NA	89	4.01	14.96	17.80	Oregon		
10.77	77.00	18.80	3,211	823.53	NA	NA	88	3.19	16.29	14.70	Washington		

Sources: (a) National Center for Education Statistics (1984). Since those with a college degree are counted among those with at least four years of high school, the three rows do not add to 100.

(b) National Center for Education Statistics (1984).

(c) National Center for Education Statistics (1984).

(d) National Center for Education Statistics (1985). The SAT is a standardized college entrance examination based on a perfect score of 1,600.

(e) National Center for Education Statistics (1985). The ACT is a standardized college entrance examination based on a perfect score of 36.






(f) National Center for Education Statistics (1981).

(g) National Center for Education Statistics (1983).

(h) National Center for Education Statistics (1982).

(i) National Center for Education Statistics (1982).

APPENDIX
CAPITAL AVAILABILITY
INDICATORS

		Total Equity Capital in Commercial Banks (000's \$ per Capita) (a)	Size of Venture Capital Funds (\$ per Capita) (b)	No Interest Rate Ceiling (c*)	Allow Branch Banking (d*)	State Equity and Venture Capital Funds (e*)	State Loan Guarantee Program (f*)	State Sponsored Business Incubators (g*)
UNITED STATES	Average	606.4	39.2	0.8	0.8	0.3	0.4	0.2
NEW ENGLAND	Average	398.7	133.8	0.8	1.0	0.5	1.0	0.5
	Connecticut	351.6	103.5	1	1**	1	1	1
	Maine	256.5	0.0	1	1**	1	1	0
	Massachusetts	443.7	202.7	1	1**	1	1	1
	New Hampshire	343.5	0.0	1	1	0	1	0
	Rhode Island	508.7	183.6	0	1**	0	1	0
	Vermont	394.2	0.0	1	1**	0	1	1
MID ATLANTIC	Average	987.7	58.3	1.0	1.0	0.3	0.7	0.7
	New Jersey	377.2	11.8	1	1**	0	1	0
	New York	1,525.4	110.6	1	1**	1	1	1
	Pennsylvania	574.3	9.8	1	1	0	0	1
MIDWEST	Average	578.6	21.7	1.0	0.8	1.0	0.5	0.5
	Illinois	838.1	62.1	1	0	1	0	1
	Indiana	502.5	0.0	1	1	1	1	0
	Michigan	430.8	2.7	1	1	1	1	0
	Minnesota	684.9	18.0	1	1	1	0	1
	Ohio	452.7	13.5	1	1	1	1	1
	Wisconsin	516.2	7.4	1	1	1	0	0
WEST NORTH CENTRAL	Average	733.0	7.0	1.0	0.5	0.2	0.2	0.0
	Iowa	756.1	17.9	1	1	0	0	0
	Kansas	723.2	17.9	1	0	1	0	0
	Missouri	629.4	4.0	1	0	0	0	0
	Nebraska	772.5	0.0	1	1	0	0	0
	North Dakota	753.6	0.0	1	0	0	1	0
	South Dakota	1,297.4	0.0	1	1**	0	0	0
EAST SOUTH CENTRAL	Average	466.4	1.4	0.5	1.0	0.0	0.3	0.3
	Alabama	457.2	0.0	1	1**	0	0	0
	Kentucky	543.3	2.0	1	1	0	1	0
	Mississippi	416.8	1.2	0	1	0	0	1
	Tennessee	440.7		0	1	0	0	0

Total Equity Capital in Commercial Banks (000's \$ per Capita) (a)	Size of Venture Capital Funds (\$ per Capita) (b)	No interest Rate Ceiling (c*)	Allow Branch Banking (d*)	State Equity and Venture Capital Funds (e*)	State Loan Guarantee Program (f*)	State Sponsored Business Incubators (g*)	
410.6	13.7	0.9	1.0	0.0	0.3	0.1	Average
2,064.8	0.0	1	1**	0	1	0	Delaware
428.8	4.4	0	1**	0	0	0	Florida
413.9	4.4	1	1	0	0	1	Georgia
337.1	31.6	1	1**	0	1	0	Maryland
351.0	1.8	1	1**	0	0	0	North Carolina
255.5	4.2	1	1**	0	0	0	South Carolina
400.4	57.1	1	1	0	0	0	Virginia
554.9	0.0	1	1	0	0	0	West Virginia
693.5	12.2	0.5	0.8	0.3	0.5	0.0	Average
517.6	0.0	0	1	0	1	0	Arkansas
607.0	4.4	1	1	1	1	0	Louisiana
707.3	3.3	1	1	0	0	0	Oklahoma
741.7	18.2	0	0	0	0	0	Texas
456.6	15.4	1.0	0.6	0.0	0.0	0.0	Average
361.3	12.1	1	1**	0	0	0	Arizona
531.6	38.3	1	0	0	0	0	Colorado
403.2	2.0	1	1**	0	0	0	Idaho
628.7	0.0	1	0	0	0	0	Montana
422.1	0.0	1	1**	0	0	0	Nevada
443.0	22.8	1	1	0	0	0	New Mexico
372.2	0.0	1	1**	0	0	0	Utah
731.6	0.0	1	0	0	0	0	Wyoming
487.7	95.1	0.8	1.0	0.2	0.6	0.0	Average
835.4	0.0	1	1**	1	0	0	Alaska
524.4	123.1	1	1**	0	1	0	California
483.0	1.4	0	1**	0	1	0	Hawaii
358.4	19.3	1	1**	0	1	0	Oregon
321.0	12.6	1	1**	0	0	0	Washington

SOUTH ATLANTIC



WEST SOUTH CENTRAL



MOUNTAIN



PACIFIC



Sources: (a) Federal Deposit Insurance Corporation (1983)
 (b) Silver (1984)
 (c) Mortgage Bankers Association (1984)
 (d) Commerce Clearing House (1985)
 (e) SRI (1984)

(f) Chemical Bank (1983)
 (g) Temah and Campbell (1984)
 * 1=yes; 0=no
 ** Unrestricted state-wide branch banking allowed;
 all others have at least some restrictions.

SOURCE DOCUMENTS

- Chemical Bank, *Guide to State Capital Formation Incentives and Innovations*, New York, N.Y., 1983.
- Commerce Clearing House, Inc., *Federal Banking Law Reporter*, Chicago, Ill., 1985.
- Federal Deposit Insurance Corporation, *Bank Operating Statistics*, Washington, D.C., 1983.
- Federal Savings and Loan Insurance Corporation, *Combined Financial Statement*, Washington, D.C., 1985.
- Mortgage Bankers Association, *State Legislative Compilations*, Washington, D.C., 1984.
- National Research Council, *An Assessment of Research-Doctorate Programs in the United States: Biological Sciences*, Washington, D.C., 1982a.
- National Research Council, *An Assessment of Research-Doctorate Programs in the United States: Engineering*, Washington, D.C., 1982b.
- National Research Council, *An Assessment of Research-Doctorate Programs in the United States: Mathematical and Physical Sciences*, Washington, D.C., 1982c.
- National Science Foundation, *Academic Science/Engineering: R&D Funds*, Washington, D.C., 1984.
- National Science Foundation, *Research and Development in Industry*, Washington, D.C., 1983.
- SRI International, *Innovations in Industrial Competitiveness at the State Level: Report to the President's Commission on Industrial Competitiveness*, Menlo Park, Calif., 1984.
- Silver, A. David, *Who's Who in Venture Capital*, John Wiley and Sons, Inc., New York, 1984.
- Temali, Mihailo, and Candace Campbell, *Business Incubator Profiles: A National Survey*, Hubert H. Humphrey Institute, Minneapolis, Minnesota, 1984.
- U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, Washington, D.C., 1985.
- U.S. Department of Commerce, Patent and Trademark Office, *Annual Report*, Washington, D.C., 1983.
- U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, Washington, D.C., 1984.
- U.S. Department of Education, National Center for Education Statistics, "Fall Enrollment in Colleges and Universities," Washington, D.C., 1983.
- U.S. Department of Education, National Center for Education Statistics, *Indicators of Education Status and Trends*, Washington, D.C., 1985.
- U.S. Department of Education, National Center for Education Statistics, *Residence and Migration of College Students*, Washington, D.C., 1981.
- U.S. Department of Education, National Center for Education Statistics, "Survey of Non-Collegiate Post Secondary Schools," Washington, D.C., 1982.

ACKNOWLEDGMENTS

Prepared by
SRI International
Katherine Dickinson, *Project Leader*
Eric Hansen
Douglas Henton
Robert Honeycutt
Steve Matheson
John Melville
Steven Waldhorn, *Director*
Center for Economic Competitiveness

With contributions from:
John T. Bailey
Edward Howard & Co.
Special Consultant