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Thomas G. Allen

Dennis A. Watkins

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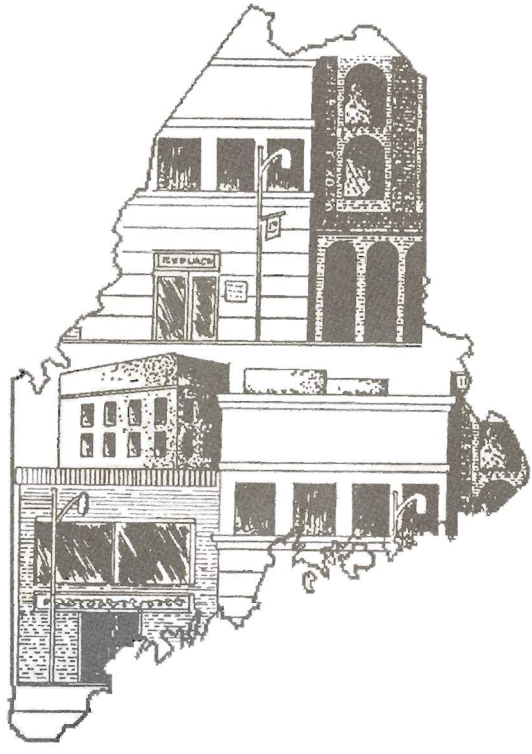

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MAINE AGRICULTURAL AND FOREST EXPERIMENT STATION
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Thomas G. Allen
Assistant Scientist

and

Dennis A. Watkins
Professor of Community Development

Department of Resource Economics and Policy
University of Maine
Orono, Maine 04469

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INTRODUCTION

Questions concerning the business climate in Maine have been debated for more than a decade with little agreement on the conditions that businesses face in Maine, on the role that government policy has on business climate, or whether there really is a relationship between business climate and overall economic performance. The cumulative effect of jobs gained or lost as a result of the decisions of individual businesses to expand, contract, shutdown, or relocate is widely viewed as the measure of a state's economic health. Among economic development practitioners, net gains in employment are taken as evidence of a positive environment for entrepreneurs; net losses signify problems that need to be addressed. Accordingly, periods of economic recession give added focus to the impact that government policy can have on the vitality of the private business sector. Policy deliberations on such issues as state and local taxation, labor laws, utility rate setting, environmental regulation, and even health care frequently become entangled in questions of potential impacts upon a state's ability to attract and retain private businesses. While arguments may be construed to link most public policy issues to the broader economy, foremost attention must be given to those underlying factors that have a direct effect on the relative costs that businesses face.

The issue of business climate has become particularly visible in Maine as the result of state-by-state rankings by various organizations that have rated Maine as less than average in several respects. Grant-Thornton, an accounting and management consulting firm, in 1987 ranked Maine's manufacturing climate as 41st in the country; in 1988 Maine was ranked 25th among 29 high manufacturing intensity states (Grant Thornton 1988, 1989). In 1992, a survey of business Chief Executive Officers (CEOs) in Maine, New Hampshire, and Vermont conducted by the College of Business Administration at the University of Maine found that the business people from Maine were the respondents who were the least satisfied with their state's business climate (College of Business Administration 1993). A report in 1993 by a Pennsylvania economic forecasting firm rated the costs of doing business higher in Maine than in 44 other states (Spiers 1993). Most recently, the Corporation for Enterprise Development's *Report Card for the States 1994* ranked Maine 17th, 42nd, and 44th in the areas of business vitality, economic performance, and development capacity, respectively (Corporation for Enterprise Development 1994). State government in Maine has received equally low ratings in recent years. A 1992 study by the publishers of *Financial World*

magazine ranked the management of Maine's state government 48th among the 50 states; by 1993, the state had moved into 40th place (The State of the States 1993).

Such rankings frequently are criticized for the selection of criteria by which they compare the states and for their lack of useful guidance to policy makers. In addition, a state's relative ranking by a particular organization can vary substantially from year to year and be affected by broader regional economic trends. Nevertheless, the frequency of Maine's poor performance on such rankings suggests that a better understanding is needed of those business climate factors that have a direct and measurable impact upon statewide economic performance. This study attempts to address that need by comparing several key costs faced by businesses in each of the New England states, and by examining how those costs relate to general economic conditions in each state. The research questions formulated to guide this review of Maine's business climate include the following:

- Is there a correlation between the costs of doing business in Maine and its overall economic performance relative to the other New England states?
- What are the significant factors that have a direct impact upon the costs faced by businesses that operate in Maine?
- How do the costs of doing business in Maine compare to similar costs in each of the other New England states and the country as a whole?
- What are the implications for public policy as regards the competitiveness of Maine's economy?

REVIEW OF PREVIOUS WORK

Studies of business climates generally fall into one of two categories. In the first category are those that seek to reduce a selected number of economic and quality of life measures into a single index on which states or cities can be comparatively ranked. Reports based on such rankings generally are targeted to economic development practitioners, government policy makers, and the general public. The second category consists primarily of academically oriented policy analyses that search for a causal relationship between business climate factors and some selected measure of economic performance. Research of this type is characterized by the use of multivariate statistical techniques to measure the extent to which certain factors impact variables such as employment, income, and economic growth.

Ranking Locations

The relative economic health or attractiveness of cities and states have been rated by a diverse range of organizations on a variety of issues. Places have been rated on such wide-ranging scales as Warner-Lambert Co.'s "Heartburn Index" based on per capita antacid consumption, Zero Population Growth's "City Environmental Stress Index," and the Institute for Southern Studies' "Green Index" of state environmental health based upon levels of pollution, public health, and subjective interpretations of state politics and policies (Fusi 1991). More familiar economic and quality of life rankings of places include *Fortune* magazine's lists of best cities for new facilities and best labor markets, *Inc.* magazine's list of hot spots based on number of company start-ups and percentage growth in employment, and *Money* magazine's list of the best places to live. Two of the more rigorous efforts to objectively rank state business climates include Grant-Thornton's *Annual General Manufacturing Climates Study* and the more recently published annual *Development Report Card for the States* produced by the Corporation for Enterprise Development. Because they are focused specifically upon economic development issues, the latter two rankings have garnered considerable attention from state economic development officials and policy makers and are described here in greater detail.

Grant-Thornton (then known as Alexander Grant & Co.) conducted its first systematic evaluation of state business climates in 1979 on behalf of the Conference of State Manufacturers Associations (COSMA) and published the report annually through the 1980s. The rankings produced by the annual Grant-Thornton reports were intended to reflect how well individual states met the needs of manufacturing industries. The rankings were based upon 21 factors, divided into five categories: State & Local Fiscal Policies; State-regulated Employment Costs; Labor Costs; Availability & Productivity of Resources; and selected Quality-of-Life measures (the specific measures are included in an Appendix). The factors utilized by the studies were selected because the empirical indicators (1) are quantifiable, (2) do not require subjective interpretation, (3) are provided by credible sources, (4) are available for all 50 states, and (5) represent a spectrum of factors that are pertinent to manufacturing in general. In 1988, Grant-Thornton divided the states in its study into categories of low manufacturing intensity and high manufacturing intensity. Over the years, Grant-Thornton ranked Maine's business climate generally among the bottom 10% of all states. In analyzing the factors that determine a state's

business climate, Grant-Thornton separately ranked states on those factors that are controllable by state policy makers and those that are not directly tied to state or local government policy. Among government-controlled factors, Maine generally ranked in the middle of all states (28th of 48 states in 1987; 15th among 29 states in 1988). By Grant-Thornton's calculations, state government in Maine had a net positive impact on the overall business climate since the state's rank among nongovernment-controlled factors is nearer the bottom (47th of 48 states in 1987; 28th of 29 states in 1988).

Among the criticisms that have been leveled at the Grant-Thornton approach to ranking the states are concerns that it oversimplifies the complex issues on which firms base their location decisions. At a gross level, detractors of the Grant-Thornton studies have argued that although the analysis reflected business climates for manufacturers, the results typically were viewed as indicative of the states' overall climate for all types of businesses. The selection and interpretation of specific measures utilized by Grant-Thornton to determine state rankings also have been criticized as inappropriate. For example, it is argued that the studies placed too much emphasis on tax revenue and government expenditures without taking into account the benefits that businesses derive from public investments. As another example, the Grant Thornton approach downgrades states with high and/or increasing levels of unionization, which some observers argue is the source of increased labor productivity and higher wages (Seidman 1987).

The *Development Report Card for the States* is an annual publication by the Corporation for Enterprise Development, which aims to provide state and corporate decision makers with a broad set of economic benchmarks on which to base policy directions. The report cards, by design, do not provide a single overall measure by which the individual states are ranked. Rather, the study evaluates states on over fifty different measures to create ten to eleven separate subindexes. Finally, rankings on the eleven subindexes are combined into three broad indexes intended to reflect the states' relative performance in the areas of economic performance, business vitality, and development capacity. Depending upon their rankings, states receive grades of "A," "B," "C," "D," or "F" on each of the subindexes and the three broad indexes. During the five annual reports since 1990, Maine has experienced little or no change in some areas and deterioration in others. On the whole, the state's human, technological, financial, and infrastructure resources to sustain economic development have received a consis-

tent grade of "D" with a ranking as 44th among all 50 states in 1994. Among the state's regional competitors, Maine is the only state in New England to receive less than a "C" grade for its development capacity. Ratings of the state's business vitality since 1990 have ranged from "A" to "B" (17th in 1994) largely due to what the Corporation for Economic Development views as a "fairly well-diversified economy combined with strong entrepreneurial energy". The state's economic performance peaked with a grade of "A" in 1991 and has declined steadily to a grade of "D" in 1994. The present low rating is the result of having the worst short-term job growth in the nation, the third worst unemployment, and job quality (measured as earnings and pay growth) that is last in the region.

While CFED's Report Card for the States provides a comprehensive set of benchmarks by which to compare states, the use of such a large array of measures makes it difficult to determine which specific factors have direct relevance for business development. Factors such as infant mortality, the incidence of heart disease, the level of tourism spending, and the number of patents issued are tangentially related to long-term economic conditions, but have little direct influence on the competitive costs of doing business in a particular state. It can be argued that with all other factors being equal, a state with low rates of infant mortality and heart disease and with an environmental quality that lures tourists to its borders is a more attractive place for business than one with negative attributes on these measures. However, in a competitive world of free enterprise, businesses often succeed or fail based on more immediate financial concerns. High rates of taxation and other operating costs that reduce a firm's profitability reduce its competitiveness vis-a-vis other enterprises which do not have a similar cost structure. All else being equal, factors that have a direct and immediate impact on the costs of doing business have a greater impact upon a firm's competitiveness than other, less essential, matters (Fusi 1991; Bartik 1985).

Multivariate Statistical Studies

Considerable work has been done to analyze the effects of state policy measures, especially fiscal variables, on employment growth and personal incomes. With an emphasis on fiscal policies, most previous studies have focused primarily upon state and local taxation and expenditure patterns. For the most part, the results are inconclusive. Results of regression analyses of the effect of taxes range from positive to negative, and have coefficients that

frequently are statistically insignificant (Tannenwald 1994). While the impact of taxes in general is mixed, more recent studies have shown evidence that the purposes for which taxes are used have important implications for economic growth. Wasylenko and McGuire (1985) found that higher wages, utility prices, personal income tax, and increases in overall levels of taxation tend to discourage employment growth in some industries, but that higher state and local spending on education has a favorable effect on job growth. In a time series/cross-section approach, Helms (1985:574) finds that "tax increases significantly retard economic growth when the revenue is used to fund transfer payments," but that public investments in highways, education, and public health and safety have a favorable impact on business location and production decisions. Similarly, Mofidi and Stone's (1990:686) study of net investment and employment in manufacturing concludes that "state and local taxes have a negative effect when the revenues are devoted to transfer payment programs, and that increases in expenditures on health, education, and public infrastructure have a positive effect." These results lend support to Mofidi and Stone's (1990) assertion that a "vicious circle" is initiated during an economic downturn in which a reallocation of expenditures toward increased transfer payments and away from public investments in health, education, and infrastructure serves to further prolong and deepen the economic downturn.

THE COSTS OF DOING BUSINESS

Attempts to rank business climates rely on a variety of indicators intended to reflect factors that are important to the success of private enterprise. The factors that determine a state's business climate generally can be organized into two categories: those that have a direct and measurable impact on business operating costs; and those less tangible and quantifiable factors that include quality of life, adequacy of available business services, burden of regulatory requirements and permitting procedures, and government attitudes toward business. While the latter types of issues are important, their relative impacts on business climate from state to state are difficult to quantify. Qualitative surveys, such as the University of Maine, College of Business Administration survey of business CEOs, are useful indicators of the relative importance of certain factors within a state, but have limited utility for determining the extent to which such factors affect the competitiveness of businesses.

This study focuses upon objectively measured factors that affect the cost environment for businesses in each of the New England states. The approach utilized in this study examines specifically the direct and measurable costs that affect the operators of a typical manufacturing enterprise: the cost for hired labor, the cost for energy, the cost of state and local taxes, and the cost of transportation. Other factors that frequently are cited as having important cost implications for businesses include the cost of capital and the costs associated with government regulation. It is clear that not all industries, or all businesses within the same industry, are affected equally by these costs. Energy costs, for example, have a greater impact upon manufacturing operations than upon most service industries. Transportation costs may be more significant for a small firm than a similar large firm due to its inability to make bulk purchases of raw materials. Nevertheless, the goal of this study is to provide some broad insight into how the costs of doing business compare in each of the New England states, and how a state's cost climate relates generally to overall economic performance.

Studies that rank business climates generally utilize a comprehensive set of cost-related factors, and include several similar measures to address multiple aspects of a single cost factor. In some instances, identical cost factors are interpreted in vastly different ways. Grant-Thornton, for example, used four different measures to gauge the impact of taxes, and eight measures to represent different aspects of costs associated with labor. The Corporation for Enterprise Development also uses multiple measures for wages, but employs them as indicators of economic performance rather than as a determinant of business costs. Multivariate statistical studies, in the interest of statistical efficiency, tend to rely upon fewer indicators to measure a particular cost factor. The use of a limited number of indicators provides greater clarity in examining the relationship of specific cost factors to the overall business climate, but the application of econometric methodologies can create confusion and lead to misinterpretation among lay readers.

The Cost of Labor

Ostensibly, a competitive advantage that a Maine location has to offer businesses is its relatively lower-wage workforce. As the primary cost component for most businesses, it is an advantage cited frequently by state and local development practitioners in promotional materials targeted to industries seeking relocation or expansion sites. By most measures, wages paid in Maine generally

are less than in other New England states. For employers, the principal components of labor costs include wages and salaries, voluntary and mandated employee benefits, and employment taxes. Some taxes and mandated benefits, particularly federal taxes such as social security and Medicare taxes and the federal portion of unemployment compensation insurance premiums, are based upon rates that do not vary from state to state and do not have a differential impact upon labor costs. The principal sources of variance in labor costs, in addition to wage rates, arise from workers compensation insurance premiums and state unemployment taxes.

Comparable wage data for each of the New England states can be construed from several federal government reports. Two key sources include the Bureau of the Census' *County Business Patterns* which includes total payroll data, by industry, for all businesses that employ people, and the Bureau of Labor Statistics *Employment and Earnings* reports of average hourly earnings. By either measure, Maine has one of the lower-wage workforces in New England. To accurately reflect payroll costs as they affect employers in each state, it is necessary to adjust the wages to account for other labor-related costs that may vary from state to state. The unemployment compensation tax is a joint federal-state program. The federal portion of the tax does not vary between the states, but the state portion varies slightly according to the tax rate, the base amount on which taxes are paid, and the experience rating of the employer. Due to the complexity of the tax and its relatively minor variation from state to state, it is ignored in this analysis of labor costs.[1] Workers compensation costs are a significant cost factor and are included in this analysis. According to a recent report, 67% of manufacturers consider workers compensation costs when selecting a new business location (Actuarial & Technical Solutions 1993).

The rapidly rising costs of workers compensation insurance and its reported effects on businesses have led to significant reform efforts in recent years. A national study of workers compensation

[1]Although there is not much difference among most states in New England, employers in Rhode Island face somewhat higher contribution rates. Unemployment insurance contributions paid by new employers in New England range from 2.7% of the first $8,000 in wages (taxable wage base) paid to an employee in New Hampshire to 3.7% of the first $16,800 dollars paid to a worker in Rhode Island. For experienced employers, the rates typically range from less than 1% to slightly more than 8% of the taxable wage base. The actual cost to employers is further complicated by the deductibility on federal tax returns of contributions paid to state governments.

programs rated Maine's costs to manufacturing employers as the second highest in the nation in 1992 and the highest in 1993 (Actuarial & Technical Solutions 1992, 1993). In November of 1991, insurance companies representing 90% of the workers compensation market in Maine announced their intention to stop covering Maine businesses. Emergency actions by the state's Bureau of Insurance to direct more money to those firms were taken to reduce the losses incurred by the insurers (Kreis 1992). Coupled with numerous individual instances where the cost of workers compensation has been a key factor in the decision of specific firms to relocate to another state or cease operating altogether (Workers Compensation Reform Committee 1991), workers compensation has taken on wide notoriety as perhaps the greatest competitive disadvantage for Maine vis-a-vis other states. Substantial statutory reform of Maine's workers compensation laws took effect January 1, 1993, and are intended to reduce costs to Maine businesses.[2]

Wages of production workers in the manufacturing industry are used in this analysis to reflect the costs of hired labor for manufacturing enterprises in each of the New England states. Table 1 presents the average hourly wages of production workers, the cost index for workers compensation insurance in the manufacturing industry, and average hourly wages with an adjustment for workers compensation costs. The disadvantage that high workers compensation costs create in Maine may not be as significant as the attention it receives would suggest, at least for companies considering other New England states as potential locations, because most other New England states also have workers compensation costs that are higher than the national average. While Maine's costs are the highest in the nation, both Massachusetts and Rhode Island have costs that are among the five highest in the nation, and five of the six New England states are in the top thirteen. As a result, Maine's manufacturing wages, which are the fourth highest in New England, move only to the third highest when adjusted for Maine's workers compensation costs.

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[2]The result of changes in Maine's Workers' Compensation legislation is not yet clear, especially relative to other high-cost states that are also undertaking reforms. The actuarial study that ranked Maine as having the highest rates in the nation was done with the statutory reforms of 1993 taken into consideration. Decreases in workers' compensation rates have resulted from recent reform efforts in Alaska, Minnesota, Oregon, and Pennsylvania. Massachusetts enacted significant reforms during 1992. Reforms in Oregon were particularly effective. In 1990, Oregon had the 7th highest rate of 44 states; by 1993 Oregon was ranked 39th of 44 states.

Table 1. Average hourly wages in manufacturing with adjustments for workers' compensation costs in the New England states and the U.S., 1992.

State	Average Hourly Wages	Workers' Compensation Index	Adjusted Average Hourly Wages
Maine	11.41	1.806	12.46
New Hampshire	11.22	1.141	11.87
Vermont	11.52	0.757	11.96
Massachusetts	12.15	1.541	13.11
Connecticut	12.45	1.355	13.31
Rhode Island	9.92	1.618	10.74
U.S. Average	11.46	1.000	12.04

The Cost of Energy

As a cost of doing business, energy prices have the potential to affect the competitiveness of Maine's economy. Industrial electricity rates in Maine have increased significantly in recent years, especially in relation to the price of electricity in New England overall (Figure 1). Since 1987, the price of industrial electricity in Maine has grown nearly twice as fast as it has in the New England region (39% versus 20%), while nationally, electrical rates had remained virtually unchanged. This is a cause for concern because, as Figure 1 shows, Maine historically has enjoyed a competitive advantage in the cost of electricity. Indeed, despite having energy prices that are above the national average, Maine typically has had the lowest overall energy prices of all the New England states (Table 2)[3].

Electricity is but one source of energy utilized in the manufacturing sector. Of the total industrial energy requirements of Maine businesses in 1991, approximately 37% was met by purchased electricity and on-site hydroelectric sources. The bulk of the remaining energy was provided in the form of heavier grades of petroleum (42%), followed by wood/biomass (14%), heating oil (7%), and coal (6%). Overall, Maine's dependence upon oil for its energy has declined substantially since the 1960s and 1970s. At that time, the state depended upon oil for approximately 70% of its energy,

[3]Price differences within states may be greater than those between states due to seasonal variations and the availability of different energy sources in specific localities. For example, natural gas is available in only the southern portions of the state of Maine.

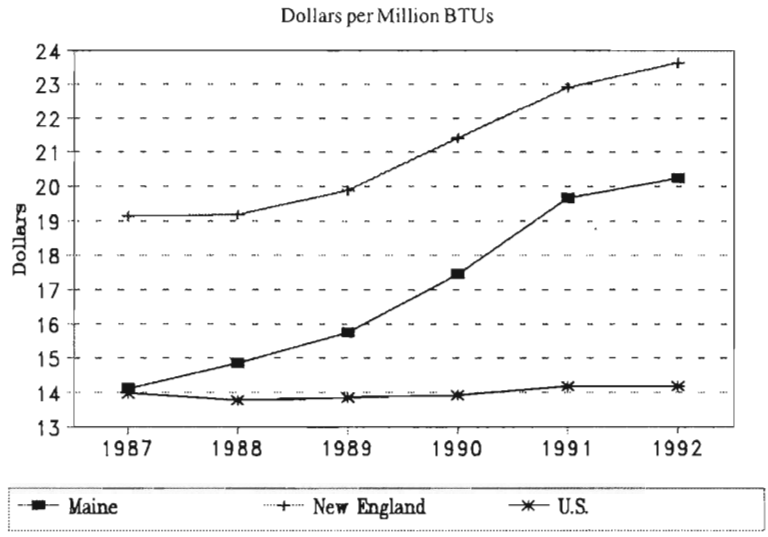

Figure 1. Prices of industrial electricity in Maine and New England, 1987–1991.

largely due to the lack of coal and natural gas in the state. Since then, the introduction of nuclear power (Maine Yankee in 1972) and the development of renewable resources (especially biomass) has reduced the dependence upon oil to approximately 50%, which is closer to the national average of 43% (Maine Commission on Comprehensive Energy Planning 1992). This reduced dependence upon oil has come about, despite a 30% increase in the use of oil during the 1980s, through a greater increase in utilization of renewable energy resources. During the 1980s, the use of hydroelectric and wood as energy sources increased by nearly 60%. In 1990, over 30% of the electricity purchased in Maine was produced by non-utility independent generators (primarily hydroelectric and cogeneration facilities), and an additional 8% to 12% of electricity was generated and used by Maine industries on site (Maine Commission on Comprehensive Energy Planning 1992).

Overall industrial energy prices in New England have held fairly steady throughout the 1980s. Even in nominal terms, the price of industrial energy in Maine was no higher in 1991 than it was in 1980, and the same is true for most other New England states. In real terms, total expenditures for energy in Maine declined by approximately 10% during the 1980s, despite a 37% increase in energy consumption. While Maine's competitive advan-

Table 2. Five-year average prices for energy in Maine, New England, and the United States. 1988–1992.

	Industrial Electricity	Industrial Energy: All Sources	Total Statewide Energy: All Sources
	dollars per million BTU's		
Maine	17.59	6.42	8.91
New Hampshire	21.43	10.89	10.70
Vermont	19.99	10.16	10.76
Massachusetts	22.93	8.95	10.02
Connecticut	22.14	8.81	11.06
Rhode Island	24.32	7.07	9.69
New England Average	21.40	8.72	10.19
U.S. Average	13.98	5.22	7.99

*Prices are statewide averages, weighted to reflect varying levels of energy consumption from different sources in each state.
Source: U.S. Energy Information Administration, SEPRD computer file, 1994.

tage vis-a-vis other New England states has eroded somewhat for electricity, relative prices across the New England states for overall industrial energy have not changed substantially. Compared to the rest of the country, however, Maine's relative energy costs have worsened somewhat. Nationally, industrial energy prices peaked in the early 1980s and have declined approximately 15% since then, while prices in Maine have remained somewhat level.

As in the rest of the country, Maine's economy became more energy efficient during the 1970s and 1980s. The overall energy intensity of the economy is measured as the value of Gross State Product produced per unit of energy consumed. Currently, half as much energy is consumed in Maine to produce the same amount of economic output as was required 20 years ago (Maine Commission on Comprehensive Energy Planning, 1992). However, despite having the lowest energy prices in New England and its improving energy efficiency, total expenditures per resident are higher in Maine than in any of the other New England states. The high level of expenditures are due to high rates of energy consumption. Per capita energy use in Maine is 25% higher than the overall average in New England. The industrial mix of Maine's economy may have more to do with the rate of energy consumption than the state's climate since both New Hampshire and Vermont, with similarly cold climates, have energy consumption rates that are less than the New England average.

The Cost of Taxes

Among the most widely studied factors viewed as having an impact on business operations are government tax policies (Joint Standing Committee on Taxation 1984; Porter 1994). Taxes are viewed at the state and local government levels as a policy variable that can be manipulated to influence the location or expansion decisions of businesses (Carroll and Wasylenko 1994; Tannenwald 1994). In addition to enticing individual large firms, tax policy is used by governments as a mechanism to stimulate overall economic activity and spur employment generation. High state taxes are perceived as barriers to economic growth by impeding firm formation and business expansion and by discouraging net inmigration of new firms, workers, and capital investment. These views are bolstered at least in part by empirical studies that find some evidence of these effects. An extensive review of the literature by Bartik (1991) found 40 of 57 business location studies that reported at least one tax variable having a statistically significant relationship to business location/expansion decisions.

There is some disagreement concerning which specific tax measures are appropriate for study. Among the most widely studied have been business/corporate taxes, personal income taxes, and property taxes. There is equally little agreement on how taxes should be measured or standardized for comparison: e.g., total tax collections per capita, statutory tax rates, relative tax burdens, or business's share of total taxes. Tannenwald (1994), in an analysis of Massachusetts' tax competitiveness, offers a critical analysis of the drawbacks related to some of the more widely used indicators. High statutory corporate tax rates, for example, attract significant attention, but by themselves do not take into account the variance in other taxes, fees, and charges paid by businesses or the state-by-state differences in deductions, exclusions, and tax credits that may be available to businesses. Business's share of state and local taxes is another widely cited measure, but is found to be more an indicator of the labor versus capital intensity of a state's economy, and less of a measure of how heavily or lightly businesses are taxed relative to individuals. A solution to the shortcomings of these and other tax indicators is to examine the tax liability of several representative firms in each of a range of selected cities (Tannenwald 1994; Lieberman and Zimbelman 1993). While this approach answers most criticisms of constructed measures of tax competitiveness, it provides little insight into the average effects of tax policies at a statewide level.

Rather than become ensnared in the debate of which tax measures most effectively reflect the burden placed upon businesses, this study utilizes one of the broader measures of a state's overall tax climate. The rationale is based partly on the fact that a substantial portion of business activity in any state is made up of enterprises that are not corporations. Therefore, focusing exclusively upon measures of corporate taxes ignores a significant portion of economic activity that effectively is taxed as individuals. Taxes paid by individuals reduce the amount of money that is available to potential entrepreneurs for investment into small business ventures.

Several methods are available to standardize tax measures in order to make useful interstate comparisons. Table 3 presents annual average tax data from 1988 to 1992 in the form of the two more frequently cited measures of the level of taxation: total state and local taxes per capita, and total state and local taxes per $1,000 of personal income. On a per capita basis, Maine has the second lowest level of taxes, while Connecticut has the highest per capita tax in New England. By this measure, the average Maine resident pays fewer taxes than the average citizen in both New England and the U.S. However, this is not an adequate measure of the burden which taxes place on Maine residents since the average Maine resident's personal income is 22% and 9% less than for people in New England and the U.S., respectively. A better measure of the tax burden, therefore, is to base total tax collections on the level of

Table 3. State and local own-source revenues in Maine, New England, and the United States, annual average 1987–1988 to 1991–1992.

	Total State and Local Taxes		State Gov't. Own-Source Revenue		Local Gov't. Own-Source Revenue	
	$ per Capita	$ per $1,000/ personal income	% derived from taxes	% derived Charges & Misc. Revenue	% derived from taxes	% derived Charges & Misc. Revenue
Maine	$2,673	$158.40	73%	27%	76%	24%
New Hampshire	$2,445	$117.96	55%	45%	85%	15%
Vermont	$2,839	$165.08	65%	35%	84%	16%
Massachusetts	$3,131	$139.48	76%	24%	75%	25%
Connecticut	$3,327	$131.71	74%	26%	88%	12%
Rhode Island	$2,706	$144.75	69%	31%	86%	14%
New England Ave.	$3,034	$138.11	73%	27%	81%	19%
United States Ave.	$2,818	$152.96	77%	23%	63%	27%

income on which it is collected. By this measure, Maine residents have the second highest tax burden in New England, and a higher tax burden than the average resident of New England and the United States.

While numerous studies of the relationship between taxes and business development have reported mixed results, more recent work that examines the particular purposes of government spending shows increasingly consistent findings. Under the assumption that some portion of taxes are utilized for purposes that benefit businesses, some researchers have begun to investigate the link between patterns of government expenditures and net investment and employment growth in industry. These studies find generally that high state and local tax burdens retard economic growth when the revenues are used disproportionately to fund transfer payments and income maintenance programs. Conversely, government expenditure patterns that emphasize public investments in infrastructure and improved education tend to have a positive effect on economic growth (Helms 1985; Wasylenko and McGuire 1985; Mofidi and Stone 1990; Carroll and Wasylenko 1994).

Table 4 presents the relative emphasis of state and local government expenditures for each state in New England and for the United States. Overall, the New England region varies somewhat from the nation in two important respects: relatively greater expenditures are made in New England for public welfare, and

Table 4. Distribution of state and local government expenditures for selected functions in the New England states and the United States, annual average 1987–1988 to 1991–1992.

	State & Local Government Expenditures							
	CT	ME	MA	NH	RI	VT	NE Ave.	US Ave.
Current General Expenditures[a]	$4,044	$3,276	$3,802	$2,979	$3,653	$3,545	$3,722	$3,334
Education	35.0%	38.2%	29.6%	40.3%	34.9%	45.8%	33.5%	39.2%
Public Welfare	16.0%	20.9%	21.3%	16.5%	18.0%	15.4%	19.1%	15.6%
Transportation	11.0%	10.9%	6.6%	10.9%	8.3%	12.0%	8.8%	9.7%
Government Admin.	5.9%	5.5%	6.0%	6.6%	6.2%	6.8%	6.0%	6.1%
Interest on Debt	7.4%	6.3%	7.3%	9.7%	9.2%	6.1%	7.5%	6.8%

[a] per capita

Percentages do not add to 100% due to the omission of selected expenditure categories.

relatively fewer dollars are expended on public education. Public welfare payments in this analysis consist of direct cash assistance transfers, vendor payments, and other forms of public welfare. Education expenditures reflect spending for public education at the elementary, secondary, and higher education levels, and other education expenditures. Compared to its regional neighbors, Maine's relative emphasis on selected expenditures is mixed. The proportion of state and local spending for education is the third highest in New England, and its spending on public welfare is the second highest.

The Cost of Transportation

Another significant factor in the cost of doing business involves the need to obtain raw materials and manufacturing inputs from suppliers and to then ship the finished product to market. Specific transportation rates vary by mode of transport, distance, weight of product, and individual shipper. Because the rates are subject to several sources of variation, a proxy indicator is needed that will serve as a reliable indicator of the relative differences between the New England states regarding general transportation costs for businesses. Without information concerning the destinations of manufacturing product in each state it is not possible to estimate relevant transportation distances beyond each state's border, and relying upon the mean distances between the largest cities in each state would impose artificial trade patterns that assume the predominant activity is restricted to the region. An alternative is to estimate the transportation costs within each state as an indicator of the overall relative differences. This approach necessarily oversimplifies many of the complexities involved in analyzing regional trading patterns, but is a reasonable option for comparing costs among the states.

Table 5 presents some selected measures available to construct a proxy for transportation costs. Generally, larger land areas and sparse settlement patterns present greater distances over which goods must be transported, but in a state such as Maine vast tracts of unsettled land would skew any indicator that uses land area as one of its factors. The total miles of road in a state, adjusted for resident population, reflects more the burden of highway maintenance in a state than of the transportation distances involved. The total miles travelled per capita measures how much travel, on average, that individuals undertake in each state, but it may be subject to biases due to its inclusion of personal commuting and pleasure travel in addition to business-related transportation. Among the available measures, on-highway fuel consumption for

Table 5. Selected transportation-related measures in Maine and the New England states, 1991. (Fuel consumption figures, 1992.)

	New England States						
	CT	ME	MA	NH	RI	VT	US
Land Area (sq.mi.)	4,845	30,865	7,838	8,969	1,045	9,249	353,6345
Population (000's)	3,291	1,235	5,996	1,105	1,004	567	252,000
Miles of Public Roadway	20,124	22,444	34,323	13,868	6,120	14,136	3,889,299
Diesel Fuel Consumed (000 gals)	189,394	114,339	253,194	51,273	39,935	59,821	21,987,597
Total Miles Travelled	26,628	11,849	46,537	9,935	7,152	5,870	2,172,214
Roads per sq. mile	4.15	0.73	4.38	1.55	5.86	1.53	1.10
Roads per hundred residents	0.61	1.82	0.57	1.26	0.61	2.49	1.54
Miles travelled per capita	8,091	9,594	7,761	8,991	7,124	10,353	8,614
Fuel Consumed per Worker (gal)	143	275	105	124	110	289	244

business-related transportation may be the most relevant indication of differences in transportation costs. The U.S. Federal Highway Administration collects and disseminates data on the amount of diesel fuel that is consumed for private, commercial use on the highways of each state. This value, when adjusted for total employment, provides the basis for comparing fuel consumption costs while accounting for differences in the level of economic activity across states and over time. By this measure, the highest expenditures for diesel fuel per worker are found in Maine and Vermont where expenditures exceed the national average, and smaller than average expenditures are found in Massachusetts and Rhode Island. As expected, these results suggest that distance and population dispersion play an important role in intra-state transportation costs.

Other Costs

Additional issues that receive substantial attention with respect to business climate are the costs of financial capital, the costs

and availability of telecommunications services, and the negative effects of government regulation on business activity. Capital costs are a particular concern due to the perception that debt financing is especially costly for smaller businesses, and research performed during the past 10–15 years has shown smaller businesses to be the principal creators of new jobs. However, concerns for the cost of capital, especially for smaller enterprises, appear to be misplaced for two reasons. First, capital costs are a small portion of business expenses, representing less than 6% and 3.5% of total business expenses for partnerships and proprietorships, respectively. For corporations, expenses related to borrowed capital are equal to approximately 7% of business expenses and increase with the size of the corporation, suggesting that capital costs are a more significant cost of doing business for larger firms than it is for smaller businesses. Second; the advent of interstate banking substantially reduced differences between states in the cost of capital[4]. The more critical issue appears to be one of availability of capital for smaller firms which, in general, present a higher ratio of risk to expected returns than do larger firms (Litvak and Daniels 1979).

The issue of comparing telecommunications costs is made difficult by the complex nature of the industry. Since the early 1980s, and especially within the past five years, technological and regulatory changes have altered the competitive factors in the industry and today are transforming the kinds of services available to customers and the costs associated with them. The court-ordered breakup of AT&T in 1982 eliminated that corporation's national monopoly of telephone service and created regional operating companies with regulations that limit the services they may offer and the geographic areas in which they may operate. Within this complex legal and regulatory environment, the convergence of computing, telephony, and video is forcing new concerns as competitors target lucrative high-volume, data-intensive connections to long distance carriers. Added to this are recent and proposed

[4]Current data pertaining to the average interest rates charged for commercial and industrial loans are not available on a state-by-state basis; however, earlier research found little variation among regions of the country. Studies have shown that interest rates in northern and southern regions varied by less than three-quarters of one percent in the late 1960s, and in 1977 the average rate of interest on long-term business loans was 7.4% in New York, 7.6% in the Southeast, and 7.7% in the Southwest (Litvak and Daniels 1979). First while larger banks operating across state boundaries are likely to exhibit the least interstate variation, smaller banks in isolated rural areas may vary substantially. Second, personnel at the Federal Reserve Board have pointed to state-by-state differences in deposit rates as an indicator of potential differences in bank lending rates.

regulatory reforms to reduce the barriers that keep competitors out of the local access business and prevent telephone companies from providing multimedia services such as cable television. In addition to the federal regulations that segment the markets for local and long distance services is a confusing patchwork of state laws and regulations. The result is a great deal of variety in the kinds of businesses that operate in the telecommunications industry and in the goods and services that they provide. This creates enormous difficulty in making generalized comparisons between states in the same way that has been done for other cost factors examined in this report.

In the case of regulatory costs, concerns stem from a lack of clear understanding of the extent of the costs borne by businesses and a reliance upon anecdotal evidence. Costs to businesses arising out of government regulation include direct expenses associated with permitting fees, staff salaries for maintaining records and ensuring compliance with regulations, and fees paid to outside consultants for engineering, legal, and other professional services. For example, a 1994 survey of midsize U.S. manufacturers' strategies for complying with environmental regulations found that 86% of firms have undertaken explicit steps to meet regulatory requirements: 59% have hired an environmental manager; 55% utilize the services of an outside consultant (Grant Thornton 1994). In addition, regulatory costs are counted indirectly as opportunity costs associated with time that upper level managers must devote to compliance and litigation matters instead of dealing with issues that are more central to the productivity of the firm. No data presently are available to objectively measure the costs that are associated with government regulations or to compare the relative degree of regulatory costs in each state although evidence suggests that the issue is significant for the majority of manufacturers. The Grant Thornton survey found that nearly one-half of business chief executive officers cite the financial cost of complying with environmental regulations as a significant concern for their company, and 44% are concerned most by the amount of time dedicated to dealing with regulatory agencies.

An indirect effect of excessive regulation on a state's business climate is reflected in the perception that business owners and managers have of a state's stance towards business development. In a 1992 survey of chief executive officers of manufacturing firms in northern New England, respondents were given an opportunity to rate 17 different business services and business climate factors in their respective states. The attitude of state government towards

business received the highest dissatisfaction rating of any other factor in Maine. In Vermont, it was rated the second most negative factor, and it received the fourth most negative rating among factors in New Hampshire.

In addition to the costs associated with government regulation, the procedures associated with obtaining required permits is cited frequently as a barrier to business development and expansion. The results of the Northern New England business climate survey bear out the dissatisfaction of business executives with permitting requirements. In Maine, the ease of obtaining business permits ranked as the second worst business climate factor, exceeded only by the respondents' dissatisfaction with the attitude of state government toward business. In the other two states, the ease of obtaining business permits was rated as the most negative factor in Vermont, while in New Hampshire it was ranked as the sixth most negative factor among the seventeen factors listed in the survey (College of Business Administration 1993).

OVERALL DIFFERENCES AMONG THE NEW ENGLAND STATES

The factors discussed above clearly are but a small part of the total costs of doing business for individual enterprises. Moreover, some firms are impacted more severely by specific cost factors than other firms. The costs associated with labor, energy, taxes and transportation presented here are intended only to provide a relative measure of some of the more direct cost factors that businesses face. To examine the different cost patterns in each state as an indication of the competitiveness of its business environment, a single index is created that relates the overall costs for each New England state to the national average. Each state's index then can be compared to the other states' index for making relative comparisons. Table 6 presents the resulting index values for each cost factor and an overall index for each state relative to the national average index value of 1.00.

To alleviate misleading results that can arise from examining any single year of data, an average figure based upon five years of data was used to calculate cost indices for the individual factors. In the case of the cost factor for workers compensation insurance, the only consistent information available relates to years 1992 and 1993. Since no comparable data are available for earlier years, the 1992 cost adjustment was applied to the average wage rate from 1988 to 1992. As with each of the other cost categories, the adjusted wage rates were then indexed relative to the national value. In

Table 6. Selected cost factors and an overall index of the costs of doing business in the New England states relative to the national average, 1988–1992.

	CT	ME	MA	NH	RI	VT	US Ave.
Labor							
Average Hourly Earnings of Production Workers in Manuf. Industries, 1988–1992	11.59	10.46	11.33	10.65	9.36	10.50	10.83
Workers Compensation Cost Index—1992	1.355	1.806	1.541	1.141	1.618	0.757	1.00
Adjusted Average	12.40	11.43	12.22	11.27	10.13	10.90	11.38
Standardized Index	1.089	1.004	1.073	0.990	0.890	0.958	
Rank	1	3	2	4	6	5	
Weighted Standardized Index	0.835	0.770	0.823	0.759	0.682	0.734	
Energy							
Average Indus. Energy Prices, 1988–1992	8.81	6.42	8.95	10.89	7.07	10.16	5.22
Standardized Index	1.689	1.230	1.716	2.087	1.355	1.947	
Rank	4	6	3	1	5	2	
Weighted Standardized Index	0.114	0.083	0.116	0.141	0.092	0.132	
Taxes							
Average State & Local Taxes per $1,000 of Personal Income, 1988–1992	104.18	117.99	105.45	84.62	108.41	117.90	107.92
Standardized Index	0.965	1.093	0.977	0.784	1.004	1.092	
Rank	5	1	4	6	3	2	
Weighted Standardized Index	0.060	0.068	0.061	0.049	0.062	0.068	
Transportation							
Highway Diesel Fuel Expenditures per Worker, 1988–1992	173.31	313.36	118.17	142.60	134.49	272.05	249.67
Standardized Index	0.694	1.255	0.473	0.571	0.539	1.090	
Rank	3	1	6	4	5	2	
Weighted Standardized Index	0.072	0.130	0.049	0.059	0.056	0.113	
Overall Cost Index							
Cumulative Weighted Standardized Index	1.081	1.051	1.049	1.008	0.892	1.047	
Rank	1	2	3	5	6	4	

addition to the multi-year averages for the states and the U.S., each cost category shows the index value standardized to the national average and the state's ranking relative to the six states in the New England region. Maine's ranking in the table ranges from highest to lowest in the region. Depending upon the specific cost factor, Maine has (1) the third highest labor costs, (2) the lowest energy

costs, (3) the highest overall tax burden, and (4) the highest transportation costs.

An average of the states' rankings in each of the four categories reveals the cost of doing business in Maine to be the highest in the region, but a closer examination suggests that the state's cost environment may not be quite as high as the average indicates. First, the state's ranking on any particular category can mask the absolute difference between Maine and another state. For example, the tax burden in Maine is 9.3% greater than the national average, but there is only one-tenth of a percentage point difference between #1 Maine and #2 Vermont. There is only 1.4 percentage points difference between Maine's labor costs and fourth place New Hampshire's. Secondly, averaging the states' rankings or their cost indexes assumes that each of the cost factors has an equal impact on the overall cost of doing business. While the importance of individual factors are likely to vary from firm to firm, their overall relative importance can be estimated by examining the cost allowances that are deductible as operating expenses on business tax returns (Table 7). The weighted standardized index for the states is computed based on these factor weightings. These adjusted figures show that the direct cost factors in Maine identified in this study are 5.1% higher than the national average, and that there is only one-half of a percentage point difference between the states with the second highest (Maine) and the fourth highest (Vermont) costs of doing business.

The average cost index in New England increased each year until 1991, followed by a slight decrease in 1992. Overall, the index rose from being a point approximately equal to the national average in 1988 to a level that was 3.3% higher than the national average in 1992. The greatest increase in the region is found in the state of Vermont where the cost of doing business escalated 9.3% faster than the national average during the period in question (Figure 2). The second highest increase occurred in Maine where the index

Table 7. Relative distribution of operating expenses among manufacturing proprietors in the United States, 1991.

Expense Categories	% of Total
Salaries & wages	77%
Utilities	7%
Taxes paid	6%
Transportation related	10%
Total	100%

grew faster than the national average by slightly more than 5%. Elsewhere in the region, the relative cost index increased in Massachusetts (2.9%) and Connecticut (2.4%), and changed very little in Rhode Island (0.0%) or New Hampshire (-0.2%). The substantial increase in Vermont's index is the result of relatively greater increases in the costs of labor, energy, and transportation. Conversely, labor and energy costs in New Hampshire changed little relative to the national average, while decreases in the costs of transportation offset a steadily rising measure of tax effort. In Maine, substantial relative increases in the cost of labor were partially offset by a moderate relative decline in transportation costs and a small decline in the measure of tax effort.

THE COSTS OF DOING BUSINESS AND ECONOMIC PERFORMANCE

The implicit argument for examining the costs of doing business stems from the belief that high costs of doing business, relatively speaking, will depress economic growth by limiting the competitiveness or profitability of existing businesses and by driving potential firms to locate in a state with relatively lower costs. The evidence from this study suggests that the relationship between the cost climate of a state and its economic performance is more complex. Rhode Island, with the lowest cost of doing business over the past five years, has an average level of per capita income,

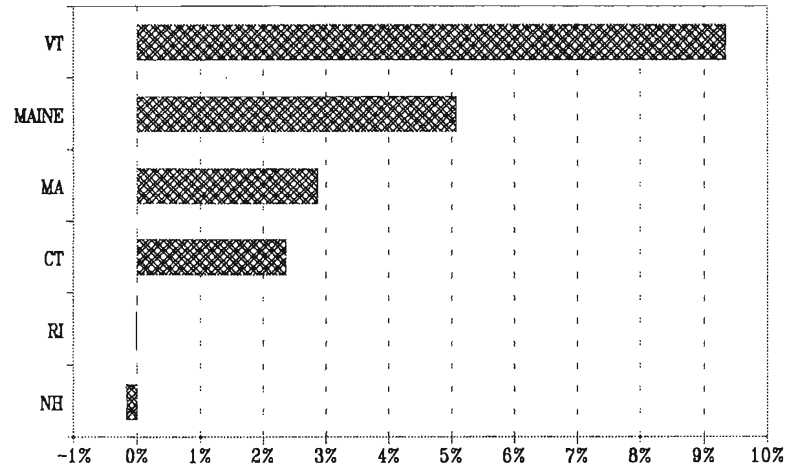

Figure 2. Growth in the cost of doing business relative to the national average, 1988 to 1992.

the region's highest rate of unemployment, one of the greatest decreases in manufacturing employment, and it has the highest rate of new business incorporations (Table 8). Connecticut, with the region's highest cost of doing business, has the highest level of per capita income in New England, but exhibits average performance on most other measures.

These relationships were examined in greater detail by pooling the annual cross-section data for each of the New England states for all five years examined in the study from 1988 to 1992. The changes in manufacturing employment and rates of new business incorporation were computed on an annual basis. The pooled data set contains thirty observations (5 years 3 6 states) on the overall cost of doing business and the economic performance variables. Gross state product per worker originating in manufacturing was added to the data set to provide insight into the nature of the manufacturing industry in each state. Measures of gross state product are not yet available for 1992 and are not included in the study. A correlation analysis was performed to search for relationships between the costs of doing business and economic performance. The results presented in Table 9 indicate that economic performance, as measured in this study, has a mixed relationship to the cost of doing business during the five-year period from 1988 to 1992.

The cost of doing business is positively correlated to the level of per capita income (Table 9). This suggests that residents of states with higher costs of doing business have a higher level of income. However, this relationship is most likely the secondary effect of the much stronger relationship between per capita income and the level of value added in a state's manufacturing sector; states with high value added exhibit higher levels of income. While this finding

Table 8. The costs of doing business and selected indicators of economic performance in the New England states, annual averages 1988 to 1992.

	CT	ME	MA	NH	RI	VT
Cost Index	1.081	1.051	1.049	1.008	0.892	1.047
Per Capita Income	25,254	16,865	22,442	20,719	18,692	17,192
Unemployment Rate	5.8%	6.0%	6.9%	6.0%	7.0%	5.4%
% Change in Mfg Emp	-18.1%	-14.6%	-20.3%	-17.4%	-20.3%	-12.1%
New Business Incorporation Rate	8.0%	6.7%	7.5%	7.5%	9.7%	7.7%

Table 9. Pearson correlation coefficients between the cost of doing business and selected measures of economic performance among the New England states, pooled cross-sectional data, 1988 to 1992.

	Cost of Doing Business	Per Capita Income	Rate of Unemp.	% Change in Mfg. Emp.	Rate of New Business Inc.	Mfg. Product per Worker
Cost of Doing Business	1.000					
Per Capita Income	0.376*	1.000				
Rate of Unemp.	0.000	0.297	1.000			
% Change in Mfg. Emp.	0.103	-0.181	0.304	1.000		
Rate of New Business Inc.	-0.393*	-0.266	-0.780*	-0.214	1.000	
Mfg. Product per Worker	0.615*	0.826*	0.399	-0.057	-0.478*	1.000

* Denotes statistical significance at 0.05 confidence level.

is in keeping with the economic maxim that increased wealth results from improvements in productivity, the more interesting finding is the positive relationship between the cost of doing business and value added. The results of the correlation analysis show a moderate and statistically significant relationship between the value added per manufacturing worker (manufacturing product per worker) and the cost of doing business.

The positive relationship indicates that the increased levels of income found in states with higher costs of doing business result from those states having manufacturing industries with higher levels of productivity. This relationship is mostly true in states other than Maine. With one of the highest costs of doing business, Maine presently has the lowest level of value added per worker in its manufacturing industries. Moreover, value added per worker in Maine during the five-year period from 1987 to 1991 grew less than half as much as in any of the other states in New England. Maine's value added per worker increased less than 9% during that time; increases in the other states ranged from 21.2% in Connecticut to 30.1% in New Hampshire. When the Maine observations are removed from the dataset, the correlation between the cost of doing business and value added per worker increases substantially (from 0.615 to 0.802) with an accompanying rise in statistical signifi-

cance, indicating that the relationship is considerably weaker in Maine than in the rest of the New England region.

The other statistically significant correlation to the cost of doing business involves the rate of new business incorporation. The negative coefficient on this pair of variables indicates that states with higher costs of doing business exhibit lower rates of new business incorporation. This may explain in part why Maine, with the second highest cost of doing business, has had the lowest rate of new business incorporation of all the New England states since 1981. By contrast, Rhode Island's cost of doing business was the lowest in the region during period under study (1988 to 1992), and it had the highest rate of new business incorporations every year during that time period.

CONCLUDING OBSERVATIONS

The results of the study suggest that Maine's cost climate is the second highest in the region, behind only that of Connecticut. However, it is important to note that there is little difference in the overall cost structure between Maine and the two states that follow it in the rankings. The relative ranking of the individual states also is very susceptible to the mix of cost factors that are used in the analysis and the specific manner in which the individual cost factors are measured. Under the assumption that most out-of-state trade for Maine businesses occurs within the New England region, the costs of doing business for Maine enterprises, on average, do not appear to present a significant competitive disadvantage. Rather, with an overall cost climate that is similar to other states in a high-cost region, it is useful to raise two important questions. First, what characteristics of other high-cost states in New England have enabled the economies of those states to perform better than the national average in terms of firm formation, employment, and levels of personal income? Second, are there particular cost factors that, with appropriate policy reforms, could become a source of competitive advantage vis-a-vis other states in the New England region?

Of the three factors for which the costs are higher in Maine than the regional average, one appears to be a natural consequence of the state's physical size and geographic location, while the other two are related more to the decisions of government policy makers in the state. Expenditures on business transportation in New England reflect primarily the population densities of the individual states. Businesses in rural states such as Maine and Vermont must transport supplies and products over greater distances within their

borders than businesses in the more densely populated states including Massachusetts and Rhode Island. There is not a great deal of variance in the price of transportation fuels across the New England states, but even with below average fuel prices, the expenditures for fuel per worker in Maine are the highest in the region.

Another factor that has a negative impact on the cost climate in Maine relative to the other states in the region is the high tax burden borne by the individuals and businesses in the state. In absolute terms, the taxes collected in Maine per resident are nearly the lowest, second only to New Hampshire. But when state and local taxes are examined relative to the personal income that is generated in the state, the burden in Maine is the highest in New England. This finding is in keeping with the results of the American Council of Intergovernmental Relations which used a representative tax analysis to determine the relative tax effort in 1988 (Advisory Commission on Intergovernmental Relations 1988). That study also found that Maine had the highest rate of taxation relative to the taxable resources in the state among all of the New England states. Studies of the impact of taxes on business activity have reported mixed results, generally concluding that higher taxes have a moderately negative effect on business location decisions and employment levels. This study suggests similar results. The study finds no evidence that higher costs of doing business depress manufacturing employment or swell unemployment rates. However, overall tax burden does have a moderate impact on the relative cost of doing business. If the rate of taxes collected per $1,000 of personal income in the state were reduced to the national level, the cost of doing business, as measured in this study, would be reduced by 0.6 percentage point, and Maine's ranking among the New England states would change from being the second most expensive to the fourth most expensive state in the region.

At 1.8 times the national rate, the cost of workers compensation insurance has a substantial impact on the cost of labor for Maine manufacturers. However, in all but one other New England state, manufacturers also face workers compensation costs that are considerably higher than the national average. While rates in Maine are problematic and present Maine companies with costs that are significantly higher than the national average, the cost of workers compensation insurance in Maine does not create a significant disadvantage relative to other states in the region, but rather may provide an opportunity to strengthen the state's competitive advantage. As the most recent legislative reforms take effect, their

impact on the cost of workers compensation relative to costs in the other states in the region will be particularly important. If the reforms lower the costs in Maine to the average level for the rest of the nation it would have an effect on the overall cost structure for businesses in Maine. At present, the factors analyzed in this study represent an aggregate cost that is five percent higher than the national average. If workers compensation costs are reduced to the national average, the cost disadvantage in Maine would be reduced by one-half, to a level that is 2.2 percent higher than the national average. Such a relative reduction in the cost of workers compensation would change Maine's ranking in the New England region from the second highest to the fourth highest. The significant change attributable to worker's compensation results from the heavy weighting given labor in the overall mix of cost factors examined in this study.

The results of the study show that the overall cost of doing business has a diverse relationship to economic performance, at least during the period from 1988 to 1992. Additional research in this regard is warranted, however, to confirm these findings and to explore whether such relationships exist only during particular phases of the economic cycle and if the cost of doing business has a delayed effect on selected measures of economic performance. The relationships uncovered here may be unique to the time period under study or may not apply to other periods of macroeconomic business cycles. Nevertheless, of particular interest is the clear relationship between the cost of doing business and the productivity of the manufacturing sector. States with the highest cost structures have manufacturing industries with the greatest levels of value added per worker. This finding has important policy implications for economic development policy in Maine. Significant public attention has been focused on the apparent disadvantages of a high-cost business climate, and various economic development groups have called for steps to reduce selected business-related costs. This study has shown that changes in specific business costs have varying effects on the overall cost structure in Maine, but that the net effect of changes on an individual factor is modest relative to the overall cost of doing business. Moreover, some cost factors provide policy makers with little leverage by which changes may be effected.

The low level and recent slow growth of value added in Maine manufacturing indicate clearly a need to examine further the issue of productivity in Maine's industries. The effectiveness of investments in manufacturing technology to improve productivity vary

by industry, but there is some evidence that the importance of investment in human capital generally is overlooked. A 1990 survey of U.S. manufacturers found that two-thirds of companies reportedly have a problem with their level of productivity, and over one-half of those that reported a problem with productivity pointed to people, not equipment or technology, as the source of the problem. However, that survey also found fewer than one-quarter of manufacturers invest in employee training or other worker productivity measures while nearly 40% had invested in capital equipment as their principal steps to improve productivity. (Grant Thornton 1990).

The relationship between the costs of doing business and the level of value added in manufacturing industries provides fundamental insight into the performance of the Maine economy and the long-term competitive position of the state within the region. High value added economies tend to have high cost structures. Generally, this relationship is due to the higher wages associated with the quality of the workforce that is necessary to produce a high value of product per worker. Compared to the other states in New England, Maine's lower skilled and moderately expensive workforce produces a low level of value added per worker.[5] Since labor represents a substantial portion of the cost of doing business, a skilled work force is an expensive component in the overall cost structure. In most states, the higher cost for skilled labor is offset

[5]The skill level of a workforce correlates closely with the average wages paid to production workers and to the value added per worker. Maine's relatively low rate of value-added output reflects the lower educational level of the state's workforce. The moderate wage level paid to production workers combines with the state's poorly rated technological resources to make the ratio of wages to value added substantially higher than in other states in New England (see table below).

	---------- Ranking among New England States --------			
	Human Resources Index[a]	Annual Wages: Manufacturing[b]	Value Added per Worker[c]	Mfg. Wages per $000 Value Added[d]
CT	1	1	2	$490
MA	2	2	1	$455
VT	3	3	4	$490
NH	4	5	3	$490
ME	5	4	5	$545
RI	6	6	6	$490

[a]Source: CFED Report Card for the States 1994. (High school graduation rate; H.S. education level; college education level) [b]Average wages paid to production workers in manufacturing, 1988–1991 average. [c]Value added per employee in manufacturing, 1988–1991 average. [d]Ratio of wages paid in manufacturing to value added in manufacturing, 1988–1991 average. (Rounded to nearest five dollars.)

by its increased productivity. Maine, however, appears to have a manufacturing base that is disproportionately expensive and/or labor intensive. Moreover, from 1988 to 1992 Maine had the lowest growth in value added of all the New England states. Thus, continuing investments in the state's human capital and technological resources are important to support long-term development of Maine's economy. Policy decisions to stimulate such patterns of investment must be particularly mindful of the needs of smaller and medium-size firms which predominate the state's private sector. Simultaneously, attention must be given to addressing the most noncompetitive cost components, including workers compensation.

A summary of several key points made in the study include the following:

- On the whole, the costs of doing business in the New England region are higher than the national average. Specific factors that have the broadest regional impact include workers compensation (five of six states are higher than the national average), and energy prices (all six states are substantially higher than the national average). Maine is at an added disadvantage since its cost climate is slightly higher than the average in New England, due primarily to its higher tax burden and distance to major markets.
- The high cost of worker compensation insurance in Maine does not eliminate the state's competitive labor cost advantage relative to the states of Connecticut and Massachusetts. Compared to the other northern states, however, high workers compensation costs turn Maine's slight labor cost advantage relative to Vermont into a disadvantage and further exacerbates the state's disadvantage relative to New Hampshire. The effectiveness of recent reform measures in Maine will become especially important in light of a trend among other high-cost states to undertake similar reform efforts.
- Industrial energy prices in Maine are the lowest in New England, yet in 1992, overall industrial energy prices in Maine were 15% higher than the national average and industrial electricity prices were 42% higher. Recent projections by the Maine Commission on Comprehensive Energy Planning anticipate steady price increases through the 1990s. Rising prices may be of particular concern in Maine because its economy is the least energy efficient of the six New England states.

- Overall, the costs of doing business in New England increased 3.3% faster than the national average over the five-year period from 1988 to 1992. The costs in Maine grew somewhat faster, recording the second highest increase in the region. A substantial increase in the cost of labor in Maine was the major factor in the cost of doing business in Maine growing 5% faster than the national average.
- The study's results are specific to the manufacturing industries. Maine's relative position with regard to other industries may be different. Wage rates in other Maine industries are more competitive relative to other states in New England than those in the manufacturing sector, and workers compensation costs in other industries present less of a competitive disadvantage. Energy prices in the state's transportation sector are closer to the national average, and the price of energy used in the commercial sector is 15% less than the national average. Also transportation is of relatively less importance in some other industries such as finance, insurance, real estate, and services.
- The link between workforce productivity and personal income underscores the need to address the level of science and technology resources in Maine as a strategy for fostering longer term economic growth in a high cost environment. The 1994 *Development Report Card for the States* ranked Maine 46th among the fifty states for its technology resources, measured by such indicators as the proportion of scientists and engineers in the workforce, science and engineering graduate students, patents issued, university research and development, and federal research and development.
- Concurrent with steps to reduce the costs of doing business, measures should be explored to spur investments in human capital and technological resources. The high ratio of wages to value added in Maine is indicative of the labor intensity and lower productivity of the state's manufacturing workforce. From 1988–1992, state and local governments in Maine were able to designate a significant portion of total expenditures to education, while also faced with allocating the second highest proportion of public spending in New England to public welfare assistance and transfer payments. As budgetary constraints in the short term limit the options available for public investment in education and public infrastructure, increased attention must be

given to the strategic importance of public policy decisions that influence long-term investment decisions in the private sector.

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