
THE MAINE ECONOMY: YESTERDAY, TODAY, AND TOMORROW

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THE MAINE ECONOMY: YESTERDAY, TODAY, AND TOMORROW

I. INTRODUCTION: CONTENDING VISIONS OF MAINE

It is often said that if the United States had been settled from west to east instead of the other way round, Maine would have been left as a national park. This view of Maine is consistent with the state's historic ties to its natural resources, the unique scenic assets found in its coastline, lakes, mountains, rivers, and forests, which are unparalleled anywhere east of the Mississippi. But the subtext is that industrial Maine, urban Maine, is somehow an infringement upon this natural idyll, brought about by mere historical accident upon what should be preserved as an irreplaceable resource. Economic growth in this view must be limited and tamed to preserve the "true Maine."

Another view of Maine is that it has always been a poor state, one which over the last 40 years has tried to live beyond its means in providing public services, with the result that taxes are too high and have driven all the good jobs away. Maine lags the rest of New England and the nation because its taxes are so high no sensible person would ever invest anything in Maine. In this view, economic growth is desperately needed and can only be achieved by somehow dramatically reducing taxes and the size of the public sector in order to attract investors to the state. However, it is rarely discussed what public services must be relinquished in favor of lower taxes, or the fact that Maine's economy has more than doubled over the last 30 years, while it has kept essentially the same tax system.¹

Yet a third view descends from Maine's history as a place where most of the capital and economic stimulus did come from outside the state. Ralph Nader's study of the Maine economy, *The Paper Plantation*, summed up the view that Maine was little more than a colonial economy exploited by the paper companies, much as other corporations were said to exploit the resources of third-world countries (Osborn 1974). Similar views were prevalent in the mill towns of Lewiston, Saco, and Sanford in the late 19th century when the birth of the labor movement in Maine led to bitter strikes against absentee owners. This view that Maine is exploited by outsiders remains in the fears about changing land-ownership patterns in northern Maine, and opposition to proposals such as that of Plum Creek Timber Company for its lands in the Moosehead Lake region to allow more residential and commercial development. Maine, from this perspective, would be much better off with locally owned and developed businesses.

These three perspectives appear to be very different, but in fact they have much in common. They are the contemporary descendants of more than a century and a half of complaints about the Maine economy. In the 185-year history of the state, the deplorable

¹ Real gross state product (deflated by the GDP implicit price deflator) grew by 125 percent from 1977 to 2004.

condition of the Maine economy has been the one constant theme on which the state's people from any era would agree with Maine residents from any other era.

A more realistic view of Maine reveals an economy that is struggling, with mixed success, to make the transition from a low labor-cost, resource-dependent industrial economy concentrated primarily in the rural areas to a high-skill, innovation-driven post-industrial economy centered in urban regions. In making this transition, Maine's economic future will be determined by a contest between its advantages and disadvantages.

II. MAINE'S INDUSTRIAL PAST: A LEGACY OF ABUNDANCE

Although the Pilgrims get most of the press when it comes to the founding of New England, Maine actually played a major role in the region's early European settlement. In the late 16th century, English cod fishermen were moving from a seasonal to a year-round fishery by leaving permanently stationed crews at key drying stations such as Richmond Island in Cape Elizabeth (Innis 1954; Caldwell 1981).² Fishing and boat building, which relied on Maine's abundant and diverse forest resources and its hundreds of sheltered coves, became the foundations of the Maine economy in the pre-Revolutionary War period.

After the American Revolution, the "District of Maine"—part of the Commonwealth of Massachusetts—became a major place for settlement by soldiers of the Continental Army. The opening of much of the land in southern and western Maine for small farms took place during and after the Revolution, and was itself an underlying economic cause of the drive toward statehood, which culminated in Maine's being the other part of the "Missouri compromise" of 1820.

Even at statehood, Maine's economy had already acquired one of its long-lasting characteristics: a chronic lagging behind developments elsewhere. In 1820 as Maine was being populated by small farmers, the industrial revolution was already a generation old in neighboring Massachusetts, with Lawrence and Lowell already serving as the centers of American textile manufacturing.

Maine began to catch up to the industrial revolution in the period between 1820 and the Civil War, as the textile and, later, the shoe industries, spread out from Massachusetts into northern New England in search of two inputs: labor and hydro power. The latter was present in abundance throughout Maine, and industrial development began along the major southern and central rivers such as the Saco, Androscoggin, and Kennebec. The textile industry was supplied by a wave of immigration from Quebec, which would continue throughout the 19th century, as the land tenure along the St. Lawrence River in the Eastern Townships drove more and more people away from the increasingly limited opportunities for farming in search of the employment that was abundantly available in the mill towns of New England.

The other key 19th-century industries were ship building and shipping. The same advantages that made Maine the first place where seagoing vessels were made in North America gave Maine one of the largest ship-building and trading industries in the pre-Civil War United States.³ Abundant timber resources, rivers to bring timber from the woods to the

² As Innis points out, the practice of drying and salting cod close to where they were caught before the fish were transported back to Europe meant that the English developed a key advantage in settling North America, compared with the French, who took the "wet" cod they caught back to Europe as soon as possible after they were caught, and thus did not leave settlements.

³ As opposed to the coastal craft fabricated by Native Americans.

shore, and sheltered areas on the rivers and along the coast, combined with a growing population, made Maine a hub for ship building. The abundance of ships and seamen made Maine, particularly coastal towns from Portland to Searsport, the home of a growing world trade which rivaled, in many ways, that of Boston. The shipping and ship-building industries of the pre-Civil War era represented perhaps the one time in the state's economic history when Maine was a national leader in both the innovation and production phases of a key industry. (Duncan 2002)

The interval between the Civil War and the First World War saw the completion of major elements of Maine's industrial-era economy. The railroad was extended to Aroostook County, and opened up its fertile lands to large-scale agriculture. The paper industry switched to wood pulp as its major raw material, and the spruce-fir forests of Maine and dense network of rivers for transportation became one of the most valuable assets in North America for this rapidly growing industry. Major paper-mill investments were made along the Androscoggin and Penobscot rivers. At the same time, the textile and shoe industries expanded, as population grew with continued migration from Quebec and elsewhere.

While Portland was the state's major center of finance and trade, Bangor was a significant rival, with its own diverse manufacturing base in everything from leather tanning to food processing. Bangor emerged in the 1840s as the capital of an economic region built on lumber and timber. Other regional centers were also prospering, including Houlton at the border between the great timber resource to the west and agricultural resource to the north, and Skowhegan and Norridgewock along the Kennebec where hydropower resources were significant. Two entirely new towns, Millinocket and East Millinocket, were carved out of the forest near the confluence of the East and West Branches of the Penobscot River to serve as the home for the Great Northern Paper Company. Food-preservation technologies such as canning, which had come of age during the Civil War, enabled the establishment of the sardine industry along the eastern coast.

This era also saw the birth and growth of another industry that continues to define the Maine economy—tourism. Even in the early days after the Civil War, many wealthier residents of major urban areas of the Northeast sought to escape the increasingly fetid conditions in the summer. The railroad and steamboat offered the perfect connection to the rustic settings of Maine.⁴ Large hotels, usually operating only in the summer, opened along the coast as far east as Mt. Desert Island, and in inland areas such as the Rangeley Lakes. The first major developments of summer housing also took place. By the turn of the 20th century, some parts of Maine, such as the beaches of York County, were becoming major destinations for a population that extended well beyond the wealthy. Railroads and trolley-car lines were built just for the summer traffic between Massachusetts and southern Maine.

⁴ The first tourists to Maine were called "the rusticators."

The period between the First and Second World Wars was not a particularly good one for Maine. While some Maine industries prospered during the boom of the roaring '20s, others were in poor shape. The ship-building industry had clung to making wooden sailing ships long after the world had switched to ships of steel and steam. Maine ship builders had survived by shifting from ship-rigged vessels to schooner-rigged vessels,⁵ which greatly reduced the manpower requirements and, thus, dramatically lowered operating costs. Maine-built schooners were the major means of transport for bulk commodities such as lumber and coal along the eastern seaboard. But, while shipyards turned out larger and larger schooners in an effort to stay competitive,⁶ the shift to steel and steam was inexorable.

Only one company in Maine, Bath Iron Works (BIW), was able to succeed at shifting to the new technology. By the First World War, BIW had become a major supplier of ships, particularly destroyers, to the Navy. But after the War, naval shipbuilding collapsed, and so did BIW, which went bankrupt and closed its doors in the 1920s. Only an investment by the owners of Central Maine Power Company enabled the shipyard to reopen on a limited basis. The company would limp through the 1920s until rearmament began in the 1930s. (Snow 1987)

Other problems were becoming apparent even before the Great Depression. Southern states were beginning to lure textile manufacturing away from Maine and New England with tax and other incentives, as the huge labor force becoming available from the mechanization of cotton production became a major advantage for Southern states (Lemann 1991). Thus began a steady decline in New England and Maine manufacturing, which continues to this day. Other problems existed on the farms; Maine suffered from the agricultural depression of the 1920s as much as anywhere in the Midwest.

It all came apart during the 1930s, when Maine suffered along with the rest of the country. No part of the state or industry escaped the effects of the Depression. Like the rest of the country, Maine would have to wait for World War II to recover, leading to the question of what the postwar years would bring for Maine's economy.

The period between 1945 and roughly 1980 might be called the "set up" years for transition between an industrial and a post-industrial economy. The industrial legacy remained outwardly vibrant but, behind the scenes, profound changes were underway. At the same time, the foundations were being laid for a transition away from the resource-dependent industrial economy.

On the one hand, the signs of industrial vibrancy seemed to be everywhere. Pulp-and-paper and lumber mills cranked out ever-increasing volumes of the raw materials for an expanding national economy. The peak of potato production in Aroostook County was

⁵ Ship-rigged vessels had three masts that were square-rigged. Schooners' sails were rigged fore and aft in the style of modern sailing craft.

⁶ Even today, the Town of Waldoboro's motto is "Home of the Six-Masted Schooner."

reached in 1960, and even the most remote corner of northern Maine seemed to rest firmly on the three-legged stool of potatoes, lumber, and Loring Air Force Base. In that year, 37 percent of all wages and salaries in Maine were paid by manufacturing companies.

Rather than closing, as it did after World War I, BIW remained open, and diversified into the commercial ship-building market. Even with the continued loss of manufacturing jobs to Southern states, in 1960, Maine was still the “shoe capital” of America, producing more shoes than any other state. Shoes, textiles, and apparel accounted for 3 of every 10 dollars of wages paid in manufacturing, and, together, these industries paid more in wages and salaries than the pulp-and-paper industry. Led by paper, shoes, apparel, textiles, and food, nondurable goods manufacturing was three times the size of durable goods manufacturing in Maine, while, nationally, durable goods was 50 percent larger than nondurable goods.⁷

At the same time, important shifts were under way that lay the groundwork for the next evolution. At the top of this list was urban renewal, which utilized federal money to recreate the downtowns of Portland and Bangor. While the merits of the particular projects chosen have long been debated by urban planners, the effects of the development of I-295, the Franklin Arterial, and the redevelopment of the Old Port and waterfront districts in Portland, plus the redevelopment of commercial properties along the Kenduskeag Stream in Bangor, made it possible for these two cities to escape the somewhat blighted legacy of their industrial past and prepare for life in a future dominated by the automobile and commercial space.

Maine residents’ general confidence about the future during this period was manifested in a steady expansion in their willingness to commit their resources to the public good through government. Maine became only the second state⁸ to authorize construction of a major highway on the lines of the German *autobahn*, when the Maine Turnpike was begun in 1947. In 1951, the state raised the sales tax to 5 percent, and, in 1970, voters refused to overturn the decision of Gov. Kenneth Curtis’ administration and the legislature to impose an income tax. Less apparent to the public, but just as important for future public life in Maine, Governor Curtis completely reorganized and modernized state government, transforming an extensive archipelago of independent satrapies into a unified administrative structure. The first significant changes in local government were also under way, with the creation of regional school districts.

This relatively happy period in Maine’s economic life came to a crashing end in the 1970s, the period which accelerated the changes already silently under way. The cause of the crash—energy—was something to which hardly anyone had paid any attention. Energy only had received attention in Maine in the form of a continuing search for ways to maintain

⁷ As measured by total wages paid using data from the Bureau of Economic Analysis

⁸ After Pennsylvania

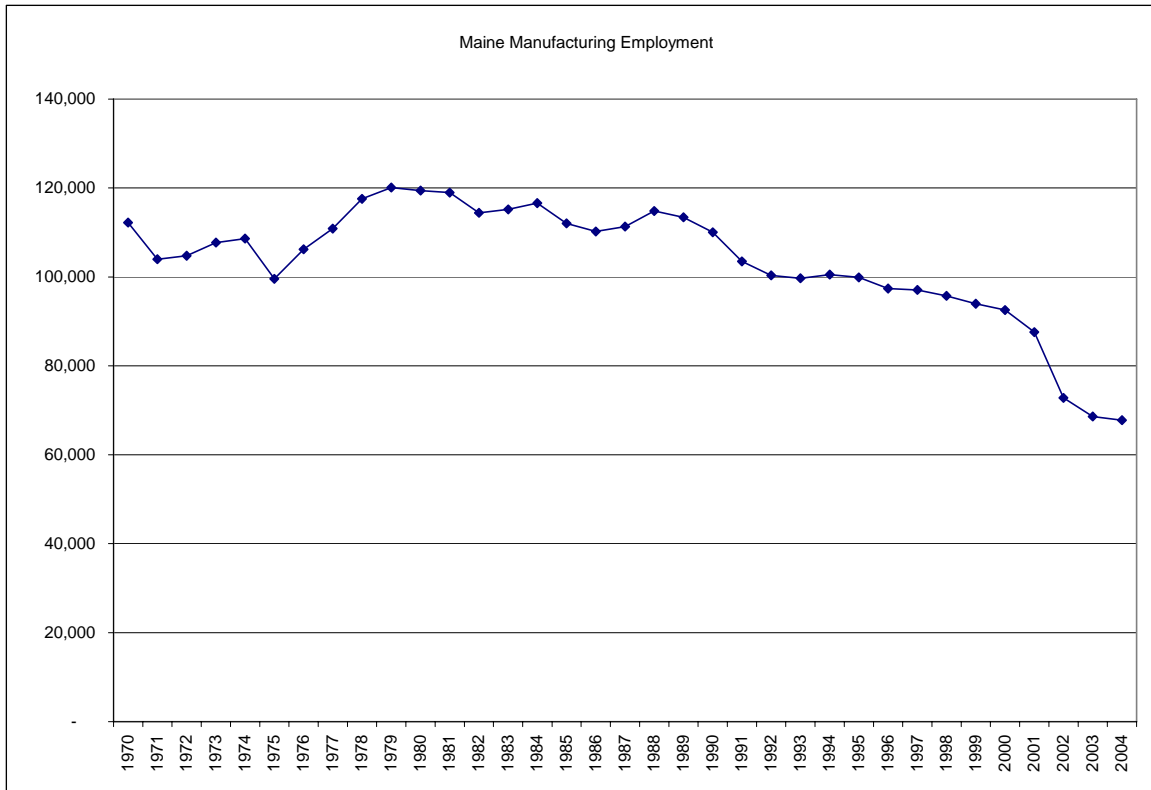
the state's industrial past through a number of proposals in the 1960s to make Maine a major center of oil refining on the east coast (Bradford 1975) or to join the dam-building frenzy in the west by building the massive Dickey-Lincoln dam project on the St. John River (Resiner 1986). The OPEC oil embargo of 1973 stimulated the idea of Maine being a new refining center. Dickey-Lincoln, a pet project of Senator Edmund Muskie, would remain a major controversy during the 1970s; it became more a symbol of the battle between the old industrial Maine and the emerging need to "protect Maine's unique resources." When Muskie left the Senate in 1980, Dickey-Lincoln died.⁹

The past 25 years have seen an acceleration of several trends that have defined the Maine economy. The most important has been increased movement away from manufacturing. Figure 1 shows manufacturing employment in Maine from 1970 to 2004. During the 1970s, there was a sharp drop in manufacturing employment associated with the 1975 recession, but that decline was reversed in the second half of the decade. Other declines were associated with recessions in the 1980s and 1990s, but recoveries in manufacturing employment were brief or nonexistent.¹⁰

⁹ It was an ironic aspect to Muskie's career that, while he was perceived as the champion of environmental causes, he was also the champion of Dickey-Lincoln, which environmentalists hated with a passion. The reality was the Muskie saw jobs and economic development in Maine always as a first priority. In the Clean Water Act and, then, the Clean Air Act, Muskie nationalized pollution regulation so that states would no longer be forced to choose between "payroll" and "pickere!" should they want to keep their environment clean. Hydropower in the 1970s was seen as a major clean alternative to oil and a way for Maine to reduce its near-total dependence on imported energy supplies, but it was also the flash point for environmentalists seeking to preserve Maine's rivers and lakes in their natural condition.

¹⁰ The fall in employment in 2001-2002 is partly associated with the shift in industrial classification systems from the Standard Industrial Classification (SIC) to the North American Industrial Classification System (NAICS). One consequence was to change the classification of certain types of establishments that had been considered part of manufacturing under SIC to parts of other industries under NAICS. A portion of the jobs shown as having been lost in 2001-2002 were still in Maine, but no longer in manufacturing.

Figure 1: Maine Manufacturing Employment, 1970-2004



Source: Bureau of Economic Analysis Regional Economic Information Service

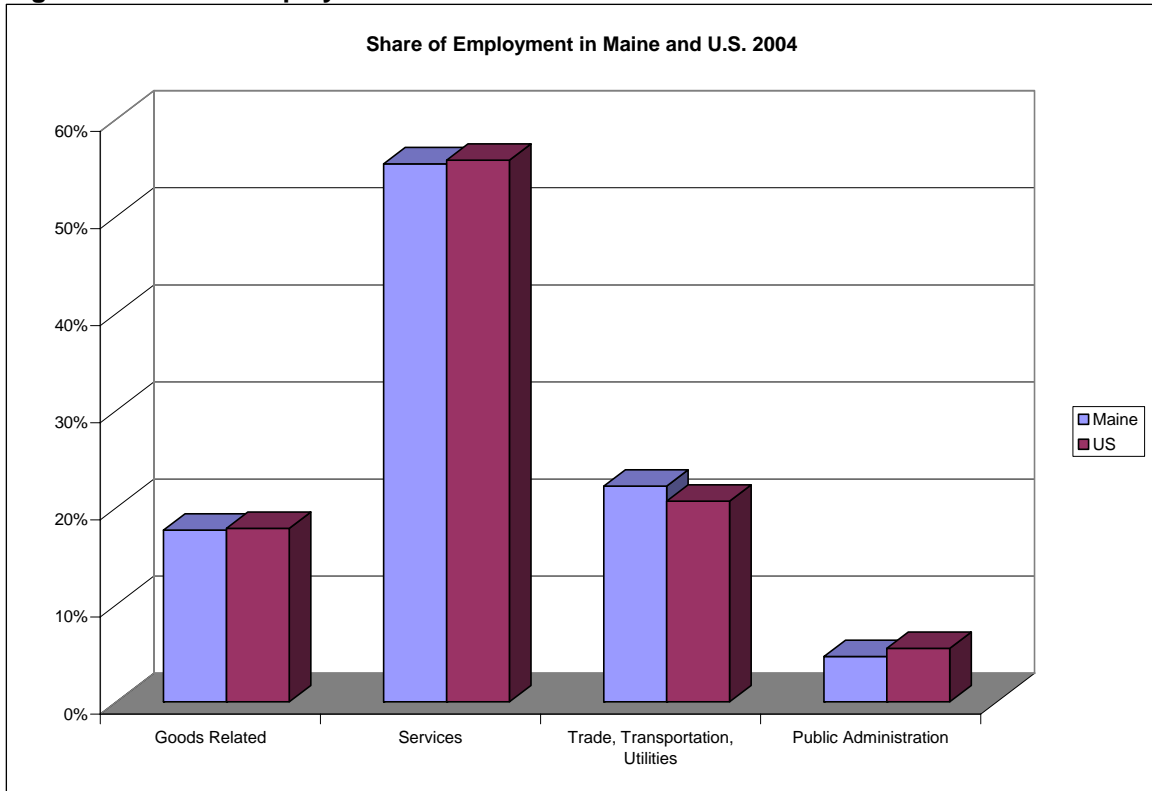
Many forces were at work in the decline of manufacturing. One was the continued outflow of jobs in textiles, apparel, and shoes; these jobs were largely lost to Southern and overseas competitors, and came about through plant closings. Another factor was a steady substitution of capital for labor, and a sharp increase in productivity. In the woods, 10-to-12-man logging crews, working with chain saws and skidders, were replaced with 3-to-4 man crews, working with feller-bunchers and delimiters, which cut more wood in less time. A final factor has been the fate of Bath Iron Works which accounted for as much as 15 percent of manufacturing employment. BIW experienced a major expansion of operations in the 1980s, with the naval buildup during the Reagan Administration, followed by the dramatic slowing of naval procurement in the 1990s.

The combination of these factors dramatically changed the role of manufacturing in Maine. In 1980, manufacturing accounted for 24 percent of employment and 24 percent of gross state product. By 2004, manufacturing was down to less than 10 percent of employment and only 12 percent of gross state product. To be sure, manufacturing also declined throughout the United States, but not to the same extent. In 1980, manufacturing employed 21 percent of the U.S. workforce and provided 21 percent of GDP.¹¹ By 2004,

¹¹ The substantial difference between the output/employee ratio in the United States and Maine in 1980 reflected the large proportion of the Maine manufacturing industry in labor-intensive industries such as shoes.

manufacturing was 10 percent of the U.S. workforce and still 12 percent of GDP, so, proportionately, Maine's job loss in manufacturing somewhat exceeded that of the U.S.

Figure 2: Share of Employment in Maine and the United States 2004



Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

Another way to interpret this change in the Maine economy is that, over the past 25 years, Maine's economy has changed from one that was notably different from that of the United States as a whole to one that is essentially the same as the rest of the nation. In that sense, the past 25 years also have been among the most important in the state's history. While Maine retains important legacies of its industrial and natural resource-dependent past, overall, it is, for the first time, a state that is fundamentally similar to the rest of the U.S. economy.

To illustrate, Figure 2 compares employment in 2004 among four major sectors in Maine and the entire United States. The differences between the two are negligible.¹² The largest differences are that Maine has slightly more employment in Trade, Transportation, and Utilities, reflecting the tourist industry's role in Maine, but is slightly less concentrated in public administration, in contrast to the usual picture of government as a sector in which Maine is overly dependent. Having made this critical transition from uniqueness to similarity

¹² These sectors are defined from BLS NAICS Super Sectors. Goods-producing include construction, natural resources, and manufacturing. Trade, Transportation, and Utilities and Public Administration are the same as the BLS Super Sector. Services includes all other NAICS Super Sectors.

with the rest of the United States, the question for Maine now is what opportunities and challenges does its current economy present?

III. MAINE'S ECONOMY TODAY

Three measures provide insight into Maine's economy today—growth rates, the specialization ratio, and average wages. These measures could be applied to any of several data series, including employment, personal income, gross state product, and population. The following analysis focuses on employment, using the three measures noted, plus a discussion of population-growth rates.

The best way to simplify a set of complex economic forces for display purposes is to map these measures against one another.

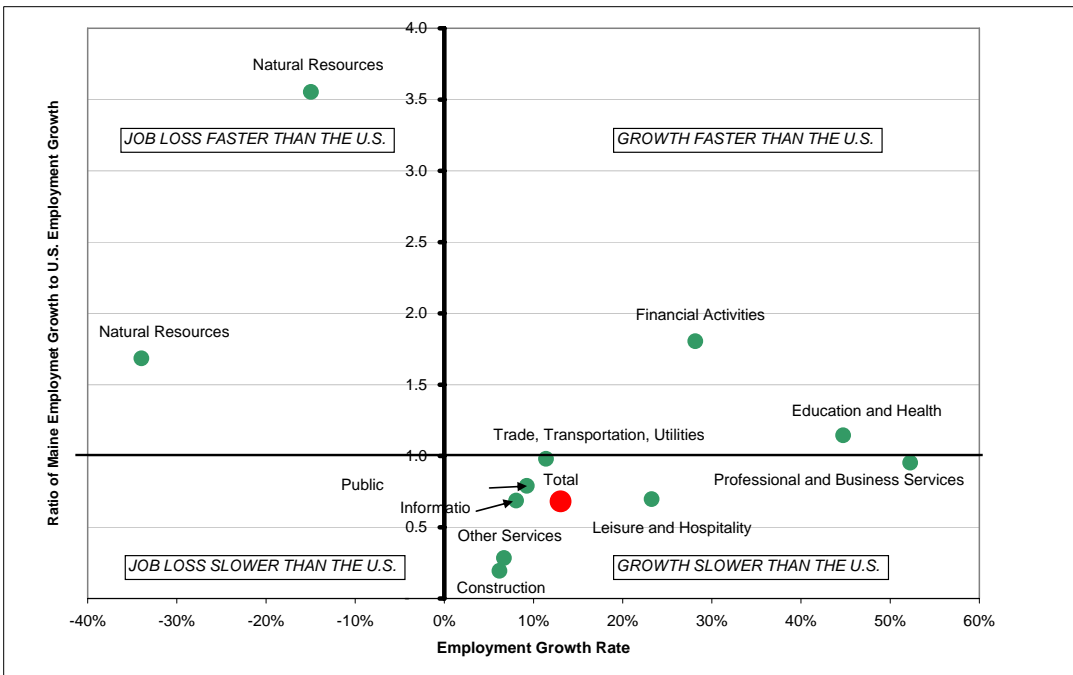
Figure 3 maps the growth rate of employment against the specialization ratio. The specialization ratio¹³ is a measure of the extent to which a regional economy is specialized in a particular industry. A ratio greater than 1 indicates that Maine is more specialized in that industry, while a ratio less than 1 indicates that Maine is less specialized. In this figure, industries located in the upper-right quadrant (relative to a measure of 1 on the specialization ratio and zero on the growth scale) are Maine's current specialties and are also growing in employment. Industries in the upper-left quadrant are growing in employment, but Maine is not specialized in these industries. The lower right-quadrant includes specialties for Maine, but declining in employment, while the lower-left quadrant shows declining industries in which Maine is not specialized.

By this measure, Maine's economy is now focused on education and health services (of which health services is by far the largest component), leisure and hospitality, and trade, transportation, and utilities, which, as noted above, is also a major component of the tourist industry. Maine also has fast-growing industries in professional and business services, and financial activities, with moderate growth in information, public administration, and other services. Manufacturing remains a specialty for Maine, but its declining role already has been noted. A similar problem occurs in natural resources, a sector in which Maine is now less specialized than the United States as a whole.

Another perspective is provided by comparing growth rates in Maine and the United States, which is provided by Figure 3. In this graph, the employment growth rates from 1990 to 2004 for Maine are shown on the horizontal axis while the ratio of Maine to U.S. employment growth rate is shown on the vertical axis. A ratio greater than 1 indicates that the sector is growing faster in Maine than in the United States as a whole, while a ratio less than 1 indicates Maine is growing more slowly. Only two sectors in Maine are growing, and growing faster than in the entire United States—education and health services, and financial activities. All other sectors showing growth in Maine are growing more slowly than the national average. Of the two declining sectors, both show declines faster than the U.S. declines in these industries.

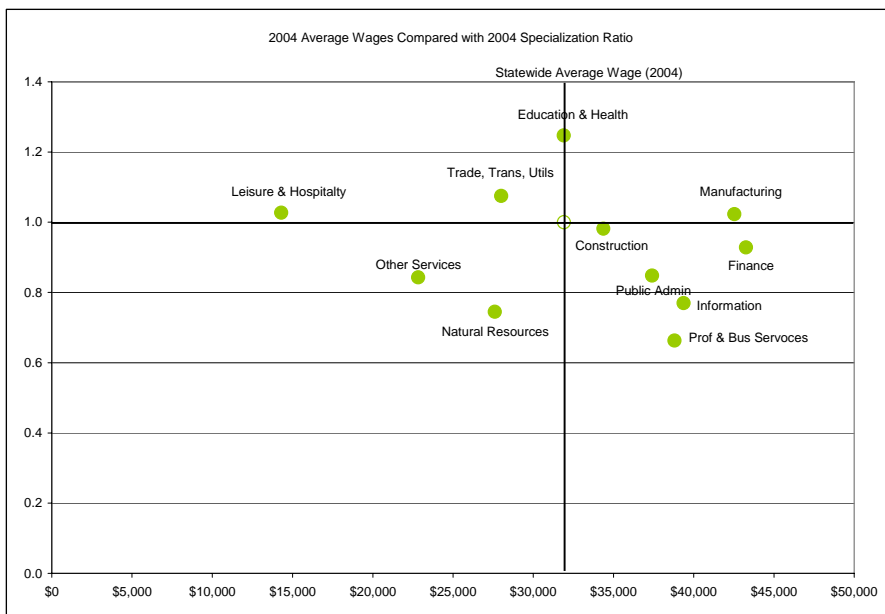
¹³ Also known as the location quotient.

Figure 3: Maine Employment Growth 1990-2004, and Ratio of Maine to U.S. Employment Growth



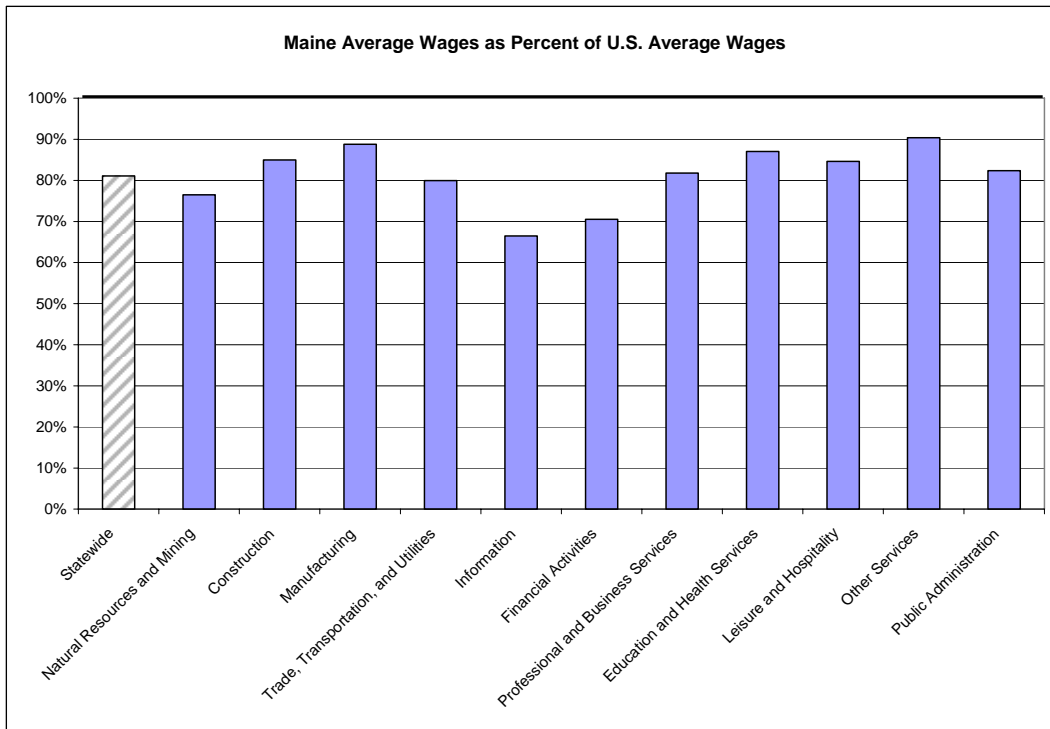
Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

Figure 4: 2004 Average Wages Compared With 2004 Specialization Ratio



Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

Figure 5: Maine Average Wages as a Percent of U.S. Average Wages



Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

Figure 4 compares average wages and the specialization ratio for Maine in 2004. The statewide average wage is shown as a vertical line dividing the horizontal axis, while the vertical axis shows the specialization ratio. Manufacturing is the only sector above the statewide average in which the Maine economy is specialized relative to the United States. All of the other sectors paying higher-than-average wages are ones in which Maine is less specialized than the national average. Maine is also specialized in two key industries paying less than the statewide average wage—leisure and hospitality¹⁴ and trade, transportation, and utilities.

Another perspective on Maine’s wages is illustrated in Figure 5, which shows the average wages in various Maine sectors as a proportion of the U.S. average wage in the same sector. As can be seen, Maine’s overall average wage and the average wage of every sector is below the U.S. average. Of 93 three-digit NAICS industries, only nine had average wages above the national industry average wage in 2004.¹⁵

¹⁴ The very low wages shown for leisure and hospitality is somewhat misleading, since the figures used are annual average wages. The very high degree of seasonal employment in this sector yields low annual average wages; average wages paid in this sector are higher than the figure shown here.

¹⁵ Animal production (112); fishing, hunting, and trapping (113); support services for agriculture/fishing/forestry (114); textile mill products (313); paper (322); health and personal care stores (446); sporting goods, hobby, book, and music stores (451); and private households (814).

These figures go a long way to illustrate Maine's present economic condition, but one caveat is needed. The specialization ratio is often interpreted as a measure of the export base of an economy, or the proportion of the economy that sells goods and services outside the state. The export base is what brings money into the state and drives incomes and consumption from which other industries benefit. The specialization ratio is, in fact, a weak measure of the export base. For example, many businesses in the information, financial-activities, and professional-business services sell their services outside of Maine. UNUM-Provident is a good example. But the specialization ratio still can be used as a rough measure of the export base.

By this measure, Maine's export base today still includes manufacturing, but now lies heavily in tourism and education and health services. The latter may seem an odd sector to define as part of an export base; it is normally assumed to be part of the local rather than the export portion of the economy. But the large portion of health care paid for by federal funds under Medicaid and Medicare gives this sector a clear export component.¹⁶ Of these export sectors, only tourism and education and health are growing.

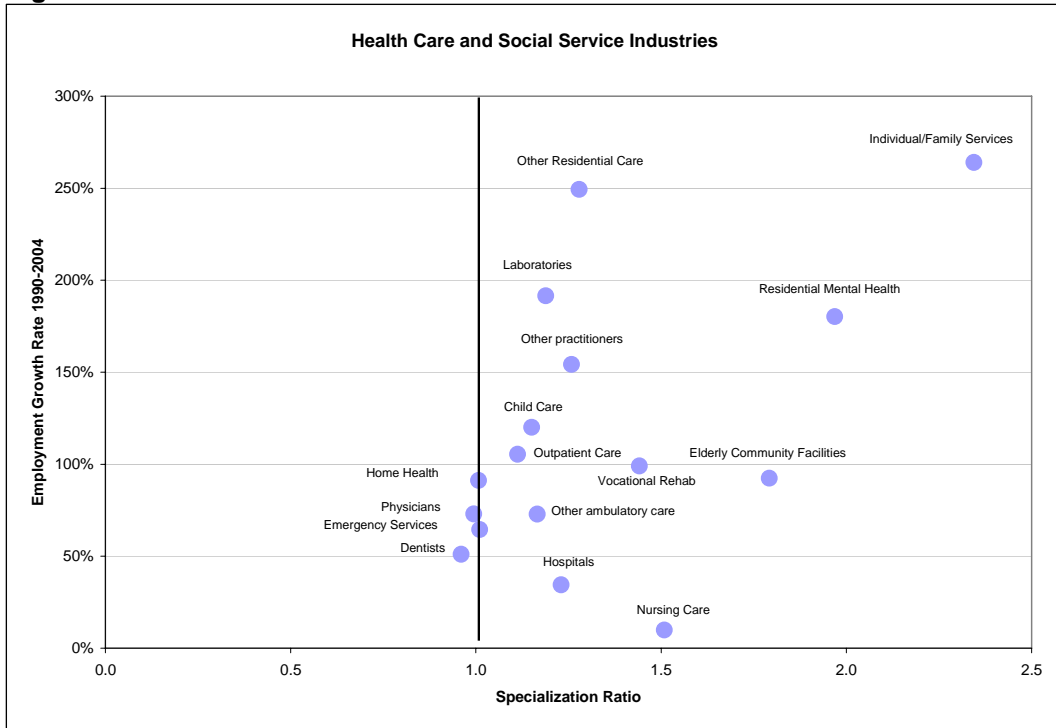
The implications of this analysis are clear and the conclusions are stark: *Maine's economy is overly specialized in sectors that pay, at best, the statewide average wage, and none of which pay the national wage. High-wage sectors, such as professional and business services, are growing, but Maine is not nearly specialized enough in these sectors to achieve economic growth and increases in income sufficient to allow the state to maintain a competitive position relative to other regions more specialized in these sectors.*

To fully understand the forces at work, it is necessary to analyze some of Maine's key sectors in greater detail. Four sectors are particularly important—employment and health services, financial activities, professional and business services, and leisure and hospitality. To understand these, it is necessary to perform a similar analysis on the major industries that make up each sector.

Figure 6 compares the growth rate and specialization ratios for major components of the education and health-care sector, while Figure 7 shows the proportion of employment in Maine accounted for by these industries. Maine is at least as specialized as the United States in all sub-sectors except in dental offices, and Maine is more specialized than the United States in most of these industries. Together, these industries comprise 15.7 percent of Maine employment, with hospitals the largest employer in this group. The "star" industry is individual and family-(social) services agencies, which is both the fastest-growing and the most-specialized industry in this group; it makes up nearly 12 percent of sector employment and 2 percent of Maine employment.

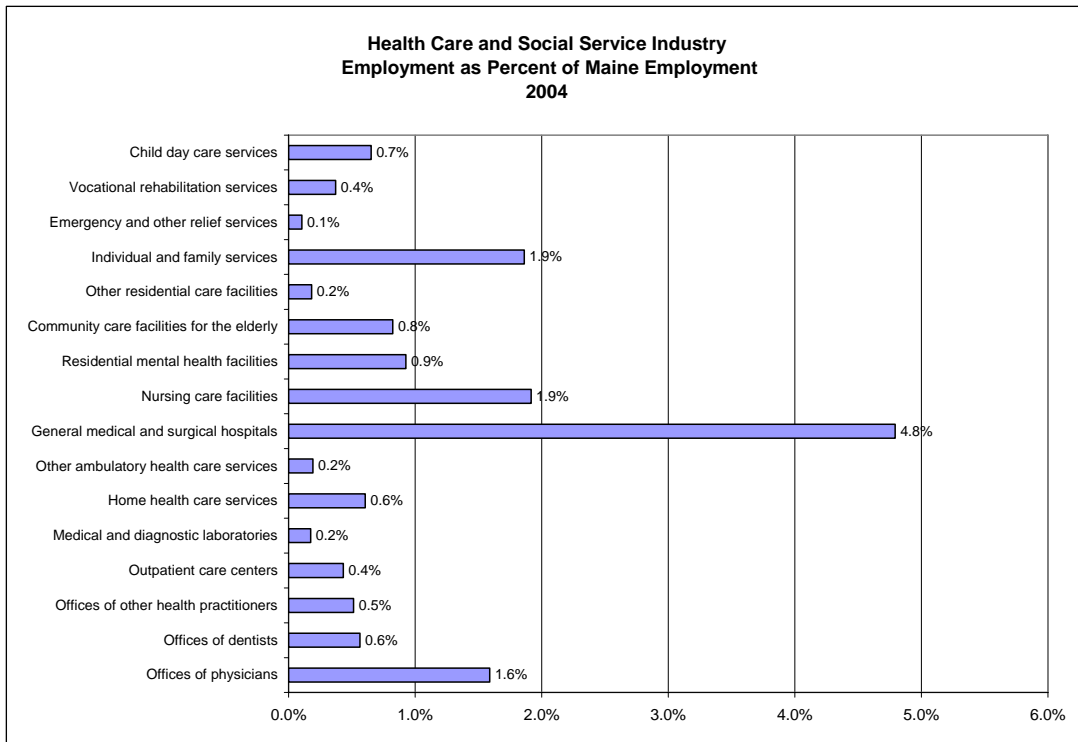
¹⁶ It is necessary to think of "exports" as bringing money into the state from outside, rather the simpler idea of sending a good or performing a service outside of Maine. The tourism industry is, thus, also an export industry.

Figure 6: Health Care and Social-Service Industries



Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

Figure 7: Health Care and Social-Service Industry Employment as Percent of Maine Employment 2004



Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

An aging population is frequently cited as a major factor in the growth of the health-care sector, but a key industry specifically targeted to elderly health care, nursing facilities, is actually the slowest growing of the industries. Community facilities for the elderly show both faster growth and greater specialization. Mental-health facilities also show significant growth and specialization. The leading edge of the sector is residential care facilities for mental-health patients and others, and social services, rather than more traditional health-care services.

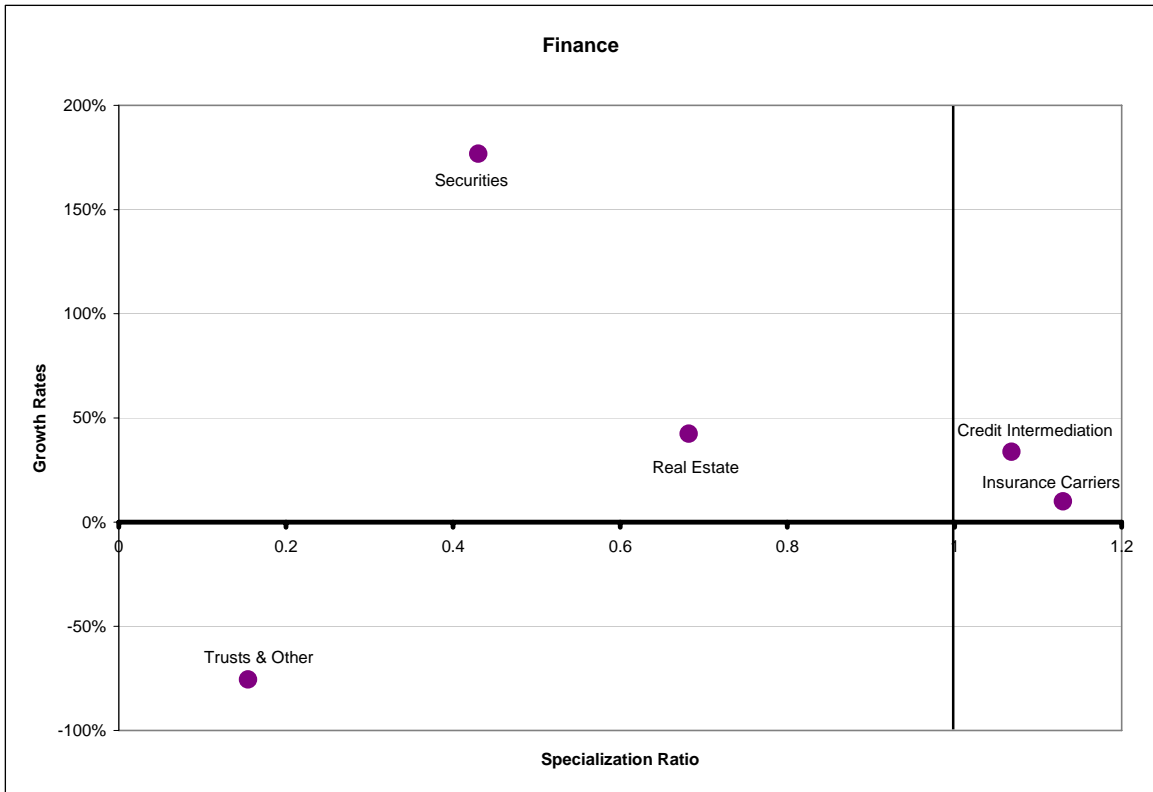
Figure 8 and Figure 9 present the analysis for the financial-activities sector.¹⁷ At first glance, this is not a sector for which Maine is known, but the analysis shows that two industries, credit intermediation and insurance, are industries in which Maine specializes and which have been growing. The driving changes in these two industries come down to two firms: UNUM-Provident and MBNA, now Bank of America. UNUM-Provident is one of America's largest disability-insurance companies, and maintains a major portion of its operations in Portland, where the company was founded. MBNA-BOA undertook a major expansion in its telemarketing operations for its credit operations in Maine during the 1990s, when it became one of the largest employers in the state.

The credit-intermediation industry also embraces other banking operations, which includes a mixture of smaller locally owned banks that have branches throughout the state, the headquarters of a major regional bank (TD-Banknorth), and the local branches and operations headquarters for the principal banks servicing Maine. National and regional consolidation of banks has reduced employment in Maine, but the expansion of locally owned banks, plus the growth of TD-Banknorth, has resulted in modest employment growth to supplement the growth from MBNA.

The professional and business-services sector is analyzed in Figure 10 and Figure 11. This sector is small in Maine, accounting for 3.8 percent of employment, but it has been among the fastest growing. Legal and architectural/engineering services are the largest employers, but both show little growth. It is a sector in which Maine is not specialized; none of the industries show a specialization ratio greater than 1, and, in general, the fastest-growing industries are also among the industries in this sector in which Maine is the least specialized. Computer systems design and consulting are the fastest-growing parts of this sector.

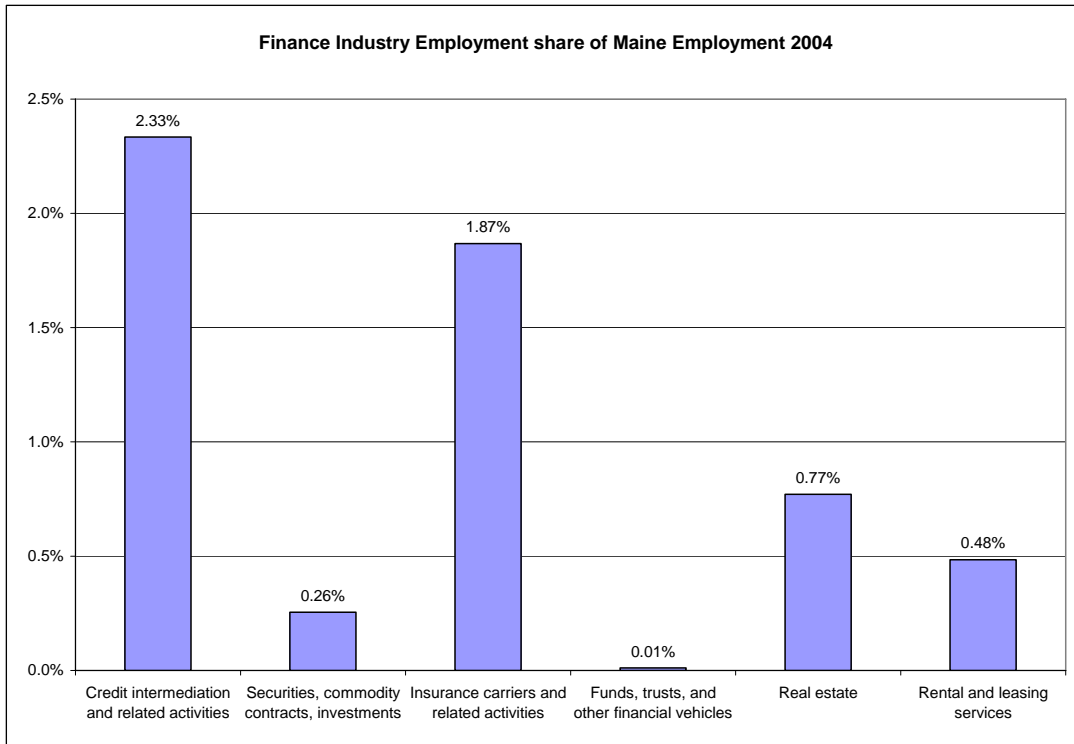
¹⁷ Data for rental and leasing services is missing in 1990, so it is not analyzed in Figure 8.

Figure 8: Finance



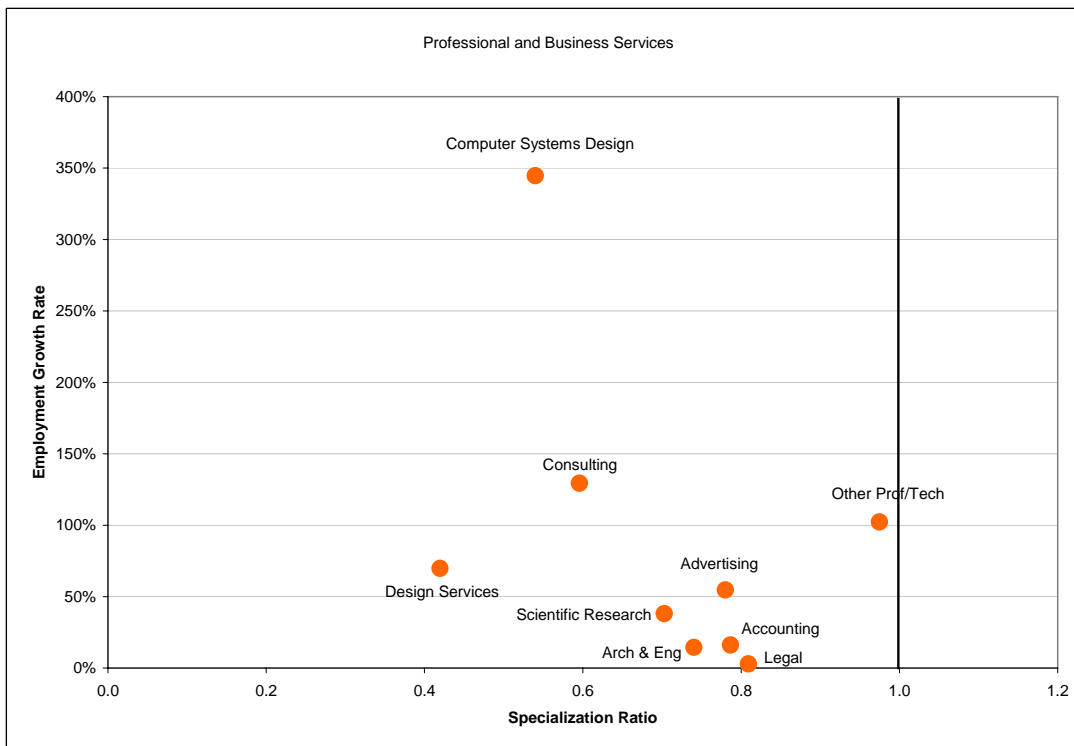
Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

Figure 9: Finance Industry Employment Share of Maine Employment 2004



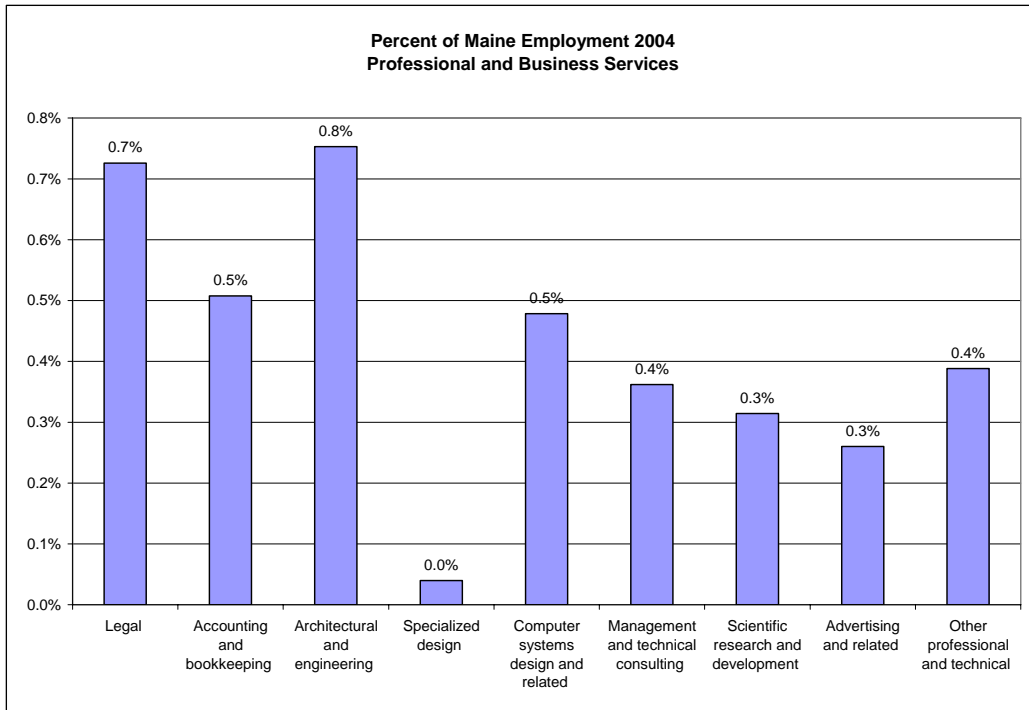
Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

Figure 10: Professional and Business Services



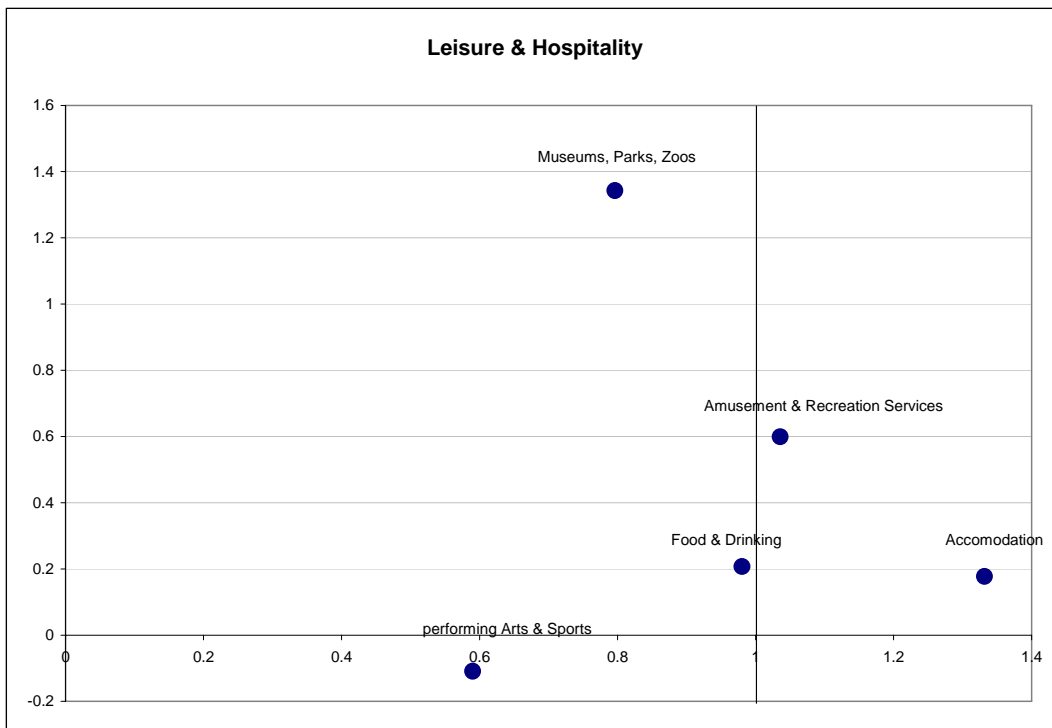
Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

Figure 11: Percent of Maine Employment 2004 in Professional and Business Services



Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

Figure 12: Leisure and Hospitality Employment as Percent of Maine Employment 2004



Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages

No non-manufacturing sector is as emblematic of Maine as tourism. As measured by trends in the leisure and hospitality sector, however, the popular view of tourism as a key to the Maine economy is subject to serious question.¹⁸ As Figure 12 shows, the key component industries in leisure and hospitality do not exhibit particularly strong specialization in Maine, except for accommodation services. Even restaurants are really no greater a portion of Maine's economy than of the national economy. Growth of tourism-industry employment since 1990 has not been particularly strong except in museums, parks, and zoos, which still only employed about 750 people in Maine. Food and accommodation are the largest employers by far, comprising about 9 percent of Maine employment in 2004.

Moreover, Maine's leisure-and-hospitality sector has not been doing particularly well compared with the rest of the United States. From 1990 to 2004, leisure-and- hospitality employment in Maine grew at only two-thirds the rate of U.S. employment growth in this sector (23 percent in Maine v. 33 percent nationally). Employment in food in Maine was about that of the U.S. industry, although employment in accommodations and museums was growing faster.

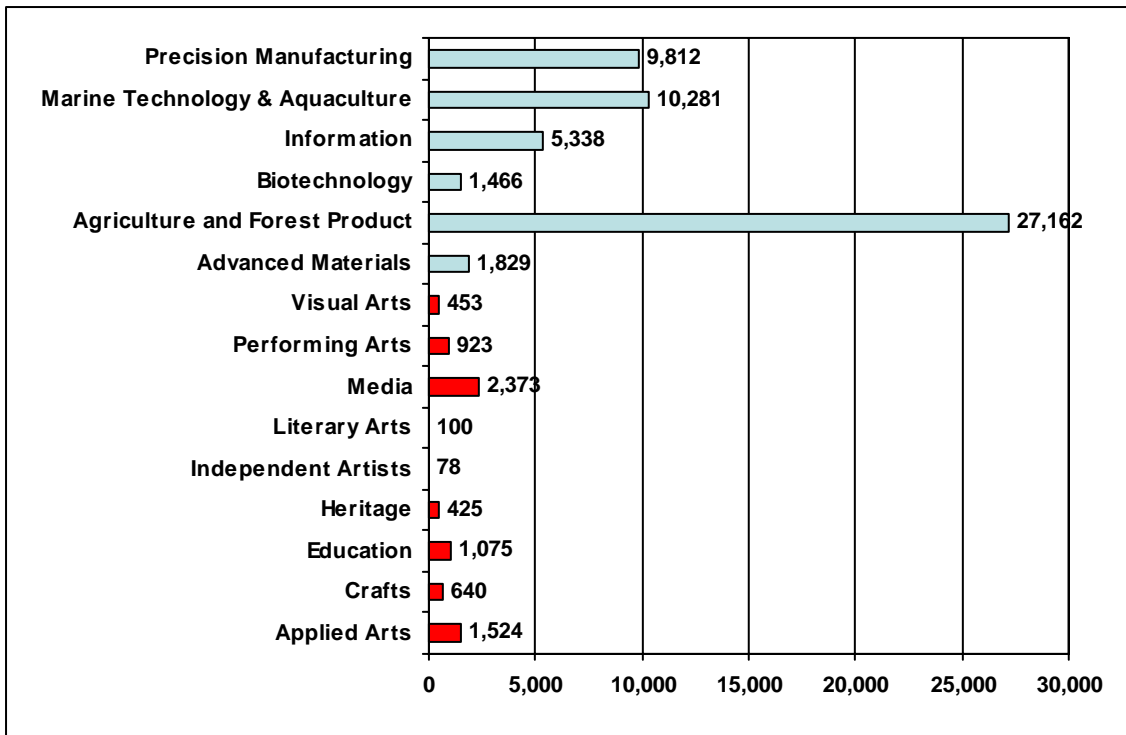
The characterization of the Maine economy so far has focused on the economy using standard industrial definitions. In the last decade, two additional concepts have been used to define certain parts of the Maine economy that have been seen as particularly important to the state's future. One is the "technology clusters," which were identified by the legislature as the targets for a variety of new and expanded support programs intended to make them much more competitive through technological innovation. Seven clusters were identified:

- Biotechnology
- Information Technology
- Composites and Advanced Materials
- Marine Technology and Aquaculture
- Forest Products and Agriculture
- Precision Manufacturing
- Environmental Products

The other area to which attention is being paid is the "creative economy." Much of the attention on this sector has been directed at "arts and culture," comprising a variety of industries in the fine and performing arts, the media and commercial design, and museums devoted to local heritage. A major statewide conference on the role of the arts and culture industries in Maine in 2003 drew significant attention to this sector.

¹⁸ In 2004, this sector employed 61,000 people, which is smaller than figures often cited as the size of the "tourist industry." Much employment in retail trade and other services is directly related to travel and tourism. This accounts for the difference between leisure and hospitality employment and higher estimates.

Figure 13: Employment in the Creative Economy 2002



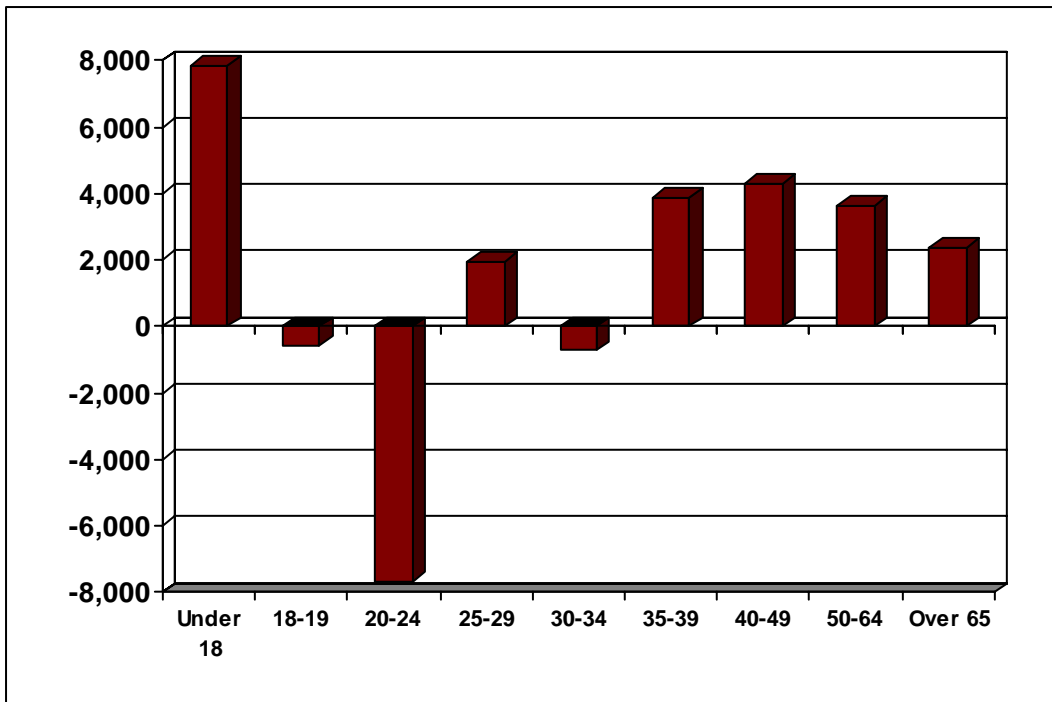
Source: Maine Department of Labor Quarterly Census of Employment and Wages

Together, these technology and arts-related sectors may be thought of as the “creative economy” since, together, they are driven by the extent and quality of the creative workforce. As Figure 13 shows, the “technology”-related clusters are substantially larger in employment,¹⁹ although this is primarily because of the size of such traditional industries as forest products, agriculture, ship building (included in marine technologies), and manufacturing. Leaving aside those sectors, the largest sectors in the creative economy include information technologies (where semiconductor manufacturing is a key part), biotechnology (led by The Jackson Laboratory and Idexx), advanced materials (the boat-building industry), media (newspapers, radio, and television), and applied arts (the largest part of which is graphic design).

The same industries that give the technology sector dominance in size are also its weakness in contributing to employment growth. Overall, employment in the technology sectors grew by less than 1 percent from 1997-2002, while the arts and culture industries grew by nearly 25 percent. Information-technology and composites-advanced materials led employment growth in the technology part of the creative economy, while the performing-arts sector led growth in the arts-and-culture industries.

¹⁹ The environmental-products industry is excluded from this analysis because it cannot be reliably measured using standard economic data.

Figure 14: Migration 1995-2002



Source: Census 2000, Public Use Microdata Sample

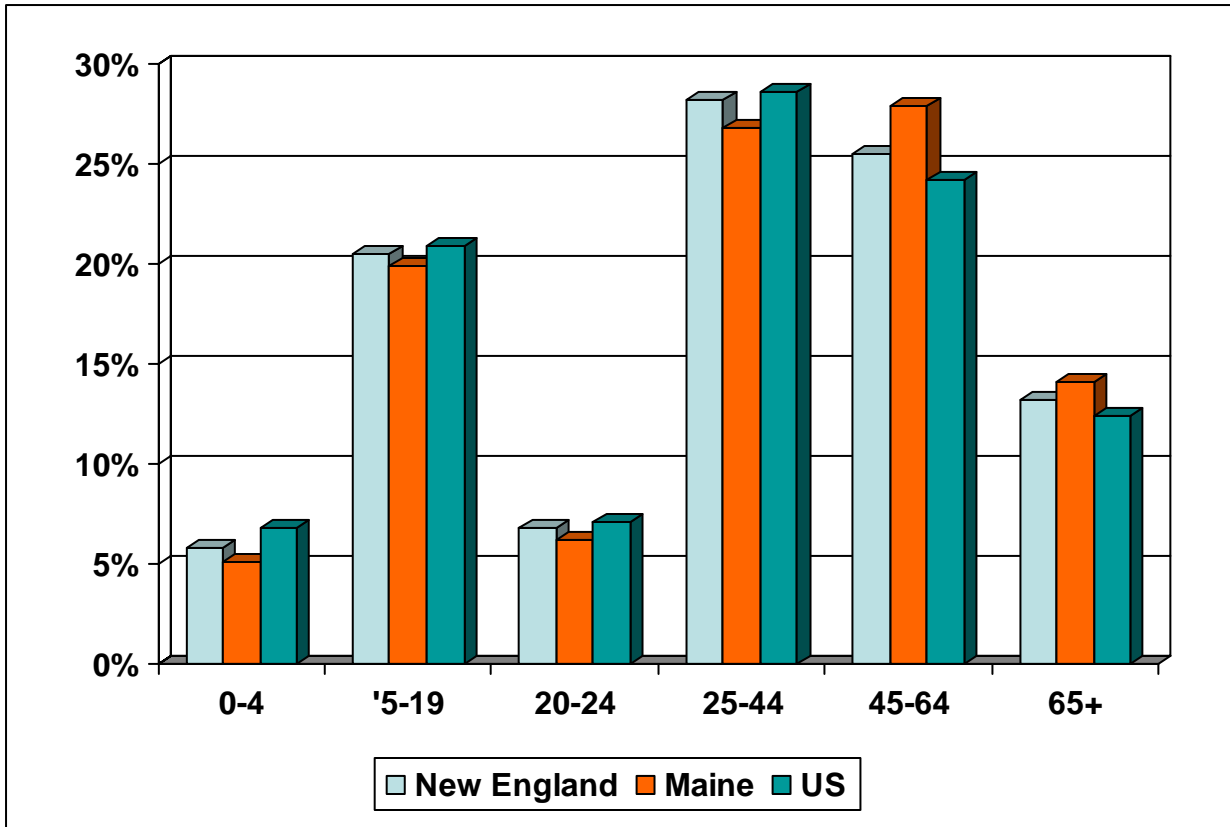
Another major concern about Maine is its population. The most commonly articulated concern is about the state's aging population. In the most recent data, Maine was noted as having the oldest median age in the country, and this has become frequently cited as evidence of Maine's aging population. This data typically is coupled with concerns about youth leaving the state in droves for lack of good jobs. There is much truth to these stories, but, as usual, it is only part of the story.

Figure 14 shows net migration to and from Maine between 1995 and 2000 based on data from 2000 Census. The youth out-migration problem is clearly visible, but it is concentrated in the 20-to-24 age group, when many young people go to college and look for work. There is a net in-migration of youth in the age group from 25-to-29, but not nearly enough to offset the losses in the college-age group. This is the real story of Maine's declining youth population—out-migration in the highly mobile years of the early 20s, but a failure to attract a share of that same population from outside of Maine. Only when the baby boom generation was in these age cohorts in the late 1960's and early 1970's was Maine able to attract more youth into the state than left.

The consequences of the baby boom's unique attraction to Maine 30 years ago actually shape Maine's population age structure today. As Figure 15 shows, Maine lags behind the United States and the rest of New England in the younger age groups, while the older age groups are a larger portion of the Maine population. The over-65 population is larger in Maine, but this has been fairly consistent during the past 30 years because Maine is

a modest retirement destination. The largest gap is in the 45-to-64 group, precisely the aging baby boomers who arrived three decades ago.

Figure 15: Population by Age 2004



Source: Census Annual Estimates

Maine clearly faces the problems of an imbalanced age structure, with a large proportion of older people in the workforce and not enough young people coming in behind them. This is particularly true in rural areas, where the problem is already acute in some locations. The result will be a shrinking workforce, increased labor costs, and reduced competitiveness. This pattern will intensify over the next decade, but the precise rate at which it does so depends on wild-card factors like the rate at which the baby boom generation leaves the workforce for retirement.

It also will depend on the rate of in-migration to Maine. Maine has been seeing net in-migration from elsewhere in the United States for about a decade. The rate, according to Census estimates,²⁰ has been about 7,000 people per year. A preponderance of these

²⁰ In the 1990s, the Census Bureau's annual estimates of Maine's population tended to underestimate the actual rate of in-migration. With the 2000 Census, 47,000 more people were found than had been estimated. Estimates this decade may be somewhat over-estimating in-migration.

migrants are coming to York and Cumberland counties. Many of the York County migrants are retirees or near-retirees who are still working in Massachusetts or New Hampshire.

IV. THE MAINE ECONOMY TOMORROW

The challenges for the Maine economy are clear, and have little to do with taxes, or out-of-state ownership, or exploding populations destroying the last of Maine's natural resources. The real story is more complex and subtle—and more difficult to address. Simply put, Maine is not well-positioned to adapt to the type of economy evolving in post-industrial societies such as the United States. Such societies are characterized by growth and specialization in high-value services, are driven by technological innovation, and are more and more concentrated in urban regions. Maine has many of these characteristics, but not nearly enough. There is some recognition that Maine must move in these directions, but far more attention is paid to recapturing a past that will not come back.

The analysis above suggests what a more successful Maine economy would look like. Figure 3 points the way. Industries which are key parts of the post-industrial economy, such as professional and business services, information services, and financial activities have to move from the left quadrant to the right. Leisure and hospitality need to increase their competitive position in Maine relative to the rest of the United States, while increasing their average wages. Health and social services will remain an important part of the economy, but government funding of these industries may be under significant stress in the coming years. This will only increase the pressure on other industries to pick up the slack in employment and income.

Three key elements will shape whether, and to what extent, Maine can accelerate its transformation to a vibrant, post-industrial economy—how well it does in innovation, education, and urban development.

Innovation has been a focus of thinking about economic growth for many years, but it has greatly intensified during the last decade, when Maine has belatedly, but enthusiastically, joined other states in attempting to spur investments in technological innovation through research and development. New facilities have been provided in the state university system and an extensive network of supports have been provided through tax credits, grants, incubators, and support services. Maine's small but vibrant research community is expanding, in part, from its own strengths and, in part, from the effects of modest but targeted public support. It is still too early to say whether Maine can significantly boost its economy through technological innovation, but, during this past decade, Maine has at least decided to join the game.

The role of **education** in shaping the post-industrial economy is obvious, pervasive, and does not require great elaboration. The service-related industries noted as key to the future are all heavily dependent on higher levels of education. Even traditional, low-wage industries such as hotels increasingly rely on college-trained managers and educated staff to provide an increasing array of amenities. Any hopes of increasing Maine's innovation

economy will depend on its workforce being educated at the highest levels in science and math, languages, and the professions.

However, debates about education in Maine are caught in a complex mix of issues that prevent any clear commitment to making education a source of real economic advantage for the state. On the one hand, Maine's nearly decade-long effort to raise the standards of education in the K-12 system bespeaks a real effort to differentiate the state from the rest of the nation. But, commitments to raise educational standards are being overwhelmed by the tax burden associated with education and health care. While education (K-12 and higher education) consumes nearly 50 cents of every dollar of state general-fund revenue, nearly two-thirds of every additional dollar of spending since 1997 has gone to health care. At the same time:

Citizens have passed a law requiring that the state pay 55 percent of the cost of education, at a cost of more than \$250 million. This huge influx of money to local education, however, must be used to reduce property taxes, not to improve education.

A dominant debate about local education in Maine today is over the efficiency of the multiple small school systems that characterize the state. Maine has a hugely disproportionate number of school systems relative to its population size, and debate is raging about whether school consolidation will result in major tax savings or the destruction of communities. Many people believe that small schools are superior educationally and worth whatever the price is.

The situation with higher education is no better, and, in some ways, worse. State funding for higher education has barely grown during the last decade, and has declined in real terms since 1990. Maine is somewhat more generous with student aid than other New England states, but—given New England's historically weak commitment to public higher education—this is not much of an accomplishment. Much has been done to expand the physical facilities of the two largest university campuses, but funding for faculty resources in labs were not funded; it must come from grants and contracts. And, in 2005, Maine voters for the first time rejected a bond issue for university and community college facilities.

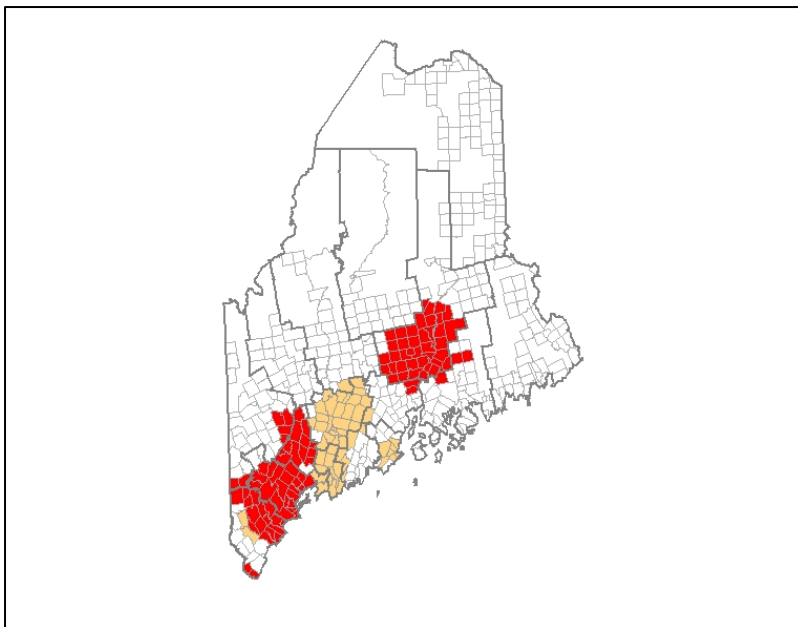
If education is a key to the future, it is a key that is rusting.

The final key to the future lies in Maine's **urban areas**, and how they evolve. The notion that Maine's economic prospects lie in its cities is utterly foreign to most Maine residents. Maine is seen as the antithesis of urbanism. It is the place where people weary of the city come for relief. It is inconceivable that what should have been a national park should be allowed to become Massachusetts, or, even more frightening, New Jersey. Yet, Maine's economic future lies in its cities, or more accurately, its urban regions.

One measure of this is the proportion of Maine now included within urban regions. In 1960, only 5 towns were in a metropolitan region.²¹ As shown in Figure 16, after the 2000 Census, most of Maine from the New Hampshire border to the middle of Penobscot County was classified as being in either a metropolitan area (red) or a micropolitan area (gold).²² In 2003, 58 percent of Maine's population was in three metropolitan areas, and 70 percent of the population was in metropolitan and micropolitan areas. More tellingly, 62 percent of personal income was located in metropolitan areas and 75 percent of personal income was in the two types of urban regions.

Maine's economic growth will be concentrated primarily in its urban regions. All of the growth and high-wage sectors needed to propel the economy forward will be concentrated in urban regions, which means that how Maine's urban areas function will become a key to competitiveness. Maine's urban areas are small, but that is actually a potential advantage. Many of the problems of larger cities are not present in Maine's urban areas, while many of larger cities' amenities are. Can Maine's urban areas retain the advantages of small, livable places while they are the center of the economic growth that must take place if the state is to thrive? Put another way, can Maine's urban areas avoid the mistakes in planning and development that have characterized most other urban areas in the United States?

Figure 16: Metropolitan and Micropolitan Areas in Maine



²¹ Portland, South Portland, Cape Elizabeth Westbrook, and Falmouth.

²² A micropolitan area is defined as having a central city of 10,000 to 50,000. A metropolitan area has a central city of at least 50,000

Some of these elements that are the real determinants of Maine's economic future are incorporated in current state economic-development policy, particularly the focus on innovation and the creative economy. Education receives the usual lip-service about its role in spurring economic growth, but the real education debates are much more about taxes. No one, other than local economic-development officials, seriously talks about making Maine's urban regions a source of competitiveness.

Beyond innovation, Maine's economic-development policies are the usual mix of place- and industry-oriented policies found in most states. Place-based policies include the Pine Tree Zones, a Maine variant of the traditional enterprise-zone programs, which offer reduced taxes for locating in certain designated areas. The Pine Tree Zone program is specifically targeted at growth in areas outside of the Portland area. More recently, the place-based focus has concentrated on the need to redevelop the Brunswick Naval Air Station (BNAS), which will soon be vacated.

Industrial-based policies include recent initiatives in ecotourism and the "creative economy," which have yet to take definite form. The central policy has been the Business Equipment Tax Reimbursement (BETR) program, which effectively exempts business personal property put in place after 1996 from property taxes. This has been a key incentive in trying to keep or attract capital-intensive firms, primarily manufacturing, but also such establishments as call centers.

V. QUESTIONS ABOUT MAINE'S ECONOMY DEMANDING ATTENTION

While the broad forces shaping Maine's economic potential are established by those shaping the global and U.S. economies, and by the legacy of Maine's economic past—which defines how Maine confronts those larger forces—there are a number of questions that demand attention.

At the top of the list is the need for more detailed understanding of the economic potential of key service industries, including professional and business services, finance, and information. These industries have never been studied to any significant degree in Maine, so very little is known about the sources of their competitive advantage, the prospects for growth (especially export markets), and the prospects for attracting firms currently outside Maine.

A related set of questions concerns the nature and extent of competitive advantage of Maine's urban regions. The comments above, concerning the potential for growth in Maine's urban areas, rest on firm theoretical and empirical foundations, but little real attention has been paid to examining Maine's urban areas in a comparative context. An exploration of the forces affecting the competitiveness and economic success of smaller urban regions (particularly those located in or near larger urban regions) is needed to better guide policies and plans affecting these areas. Housing and transportation issues will be key here, but so will issues of assuring adequate land for commercial and office-space development, and integrating commercial and residential spaces with appropriate transportation services. These considerations must be balanced with the growing desire to conserve land for habitat, natural-resource services, and recreation.

These issues are important for Maine's three metropolitan regions, but they are also important for Maine's smaller cities. The growth along the midcoast region in cities such as Rockland, Belfast, and Ellsworth has been a vital part of Maine's economic success over the past decade. The challenge to the Bath-Brunswick area from the closing of BNAS, as well as the growth of smaller urban centers ("service centers"), presents questions related to, but distinct from, those affecting the major metropolitan areas. The prospects for the economy of northern and eastern Maine largely depend on the growth of service centers. In other words, the economy of rural Maine will depend on the success of the smaller urban centers. What are those prospects, and how can they be enhanced?

Another set of questions concerns Maine's vulnerability from reliance on a small number of large companies. Maine is often, and accurately, characterized as a state dependent on small business. But a relatively small number of large companies and industries are major anchors for the economy, and those anchors may be set in very soft ground. These companies include Bath Iron Works, Bank of America, UNUM-Provident, TD-Banknorth, and pulp-and-paper companies such as SAPPI and International Paper. Among the challenges which can be seen even now are:

- BIW faces an uncertain future, as it ends the construction of the DDG class of destroyers, on which it has depended for two decades. The next generation of Navy surface combatants will be much more expensive to build, and far fewer will be procured. It is difficult to see how BIW will maintain current levels of employment into the next decade.
- Bank of America has purchased MBNA, which has several thousand Maine residents employed in teleservices for credit cards. MBNA already has reduced its investment in Maine, and the future under Bank of America is uncertain at best. This is partly a function of Bank of America's decision making, and partly a function of Maine's future in the teleservices industry.
- International Paper has put its mills in Maine up for sale. The entire global pulp-and-paper industry is in a certain amount of turmoil, with shifting international markets and chronic over-capacity. While Maine retains one of the world's most valuable forest resources for pulp and paper in the form of its spruce-fir forest, the long-term competitive advantage of this resource is open to question.

VI. CONCLUSION

Maine's economy is at a critical juncture. While the economy has grown steadily, it also has suffered from the "jobless" recovery of this decade. Revisions to the employment data just completed have resulted in wiping out the forecast employment growth for all of 2005. Most job growth is taking place in industries that are not transforming Maine into a successful post-industrial economy. The opportunities in that economy are significant, assuming that the overall U.S. economy remains healthy. Whether Maine's public policies and private-sector investments can seize those opportunities is very much an open question.

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