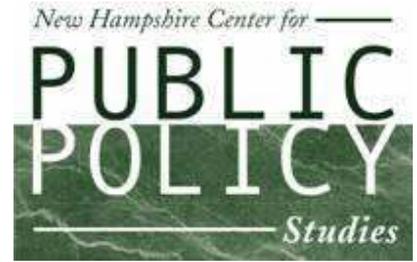


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# Smart Manufacturing and High Technology New Hampshire’s Leading Economic Sector

**March 2011**

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## **About this paper**

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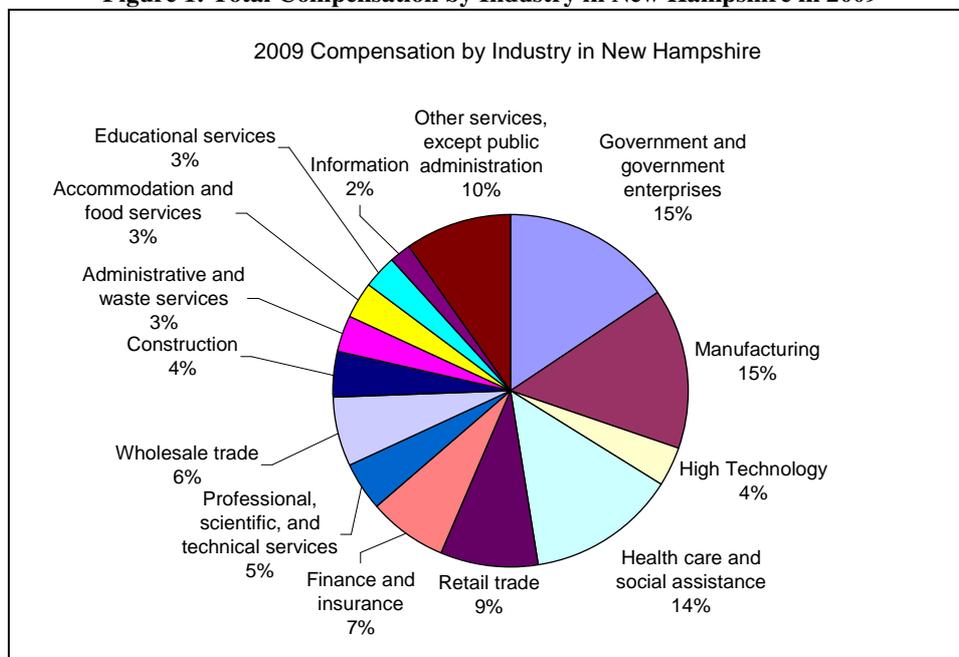
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## Executive Summary

The Smart Manufacturing/High Technology (SMHT) sector, which includes all of New Hampshire's approximately 2,100 manufacturing companies as well as more than 1,600 high technology companies, is the engine of the state's economy. Look beyond the reports of lost manufacturing jobs, and you find an industrial sector that is a still-powerful engine of economic growth in New Hampshire. As described in a recent report from the U.S. Manufacturing Competitiveness Initiative, "smart" manufacturing is "driving a revolution in the development and application of manufacturing intelligence to every level, from product invention through design, sourcing, production and delivery."<sup>1</sup>

As shown in Figure 1, SMHT remains the largest part of the New Hampshire economy. Together, manufacturing and high technology companies account for 19% of the state's economy.

**Figure 1: Total Compensation by Industry in New Hampshire in 2009**



Source: US Bureau of Economic Analysis

SMHT has been one of the hardest hit sectors in the most recent recession. But while the sector is changing in character, wages and benefits continue to grow. Wages and benefits paid by SMHT companies in the state increased from \$3.7 billion in 1990 to \$6.4 billion in 2009, even as the number of manufacturing jobs in New Hampshire declined. Granite State manufacturers now produce more industrial output, but with fewer employees, than they did twenty years ago.

In addition, the sector employs one out of six of New Hampshire's private sector workers. SMHT companies import wealth into New Hampshire at a rate four times that of the travel and

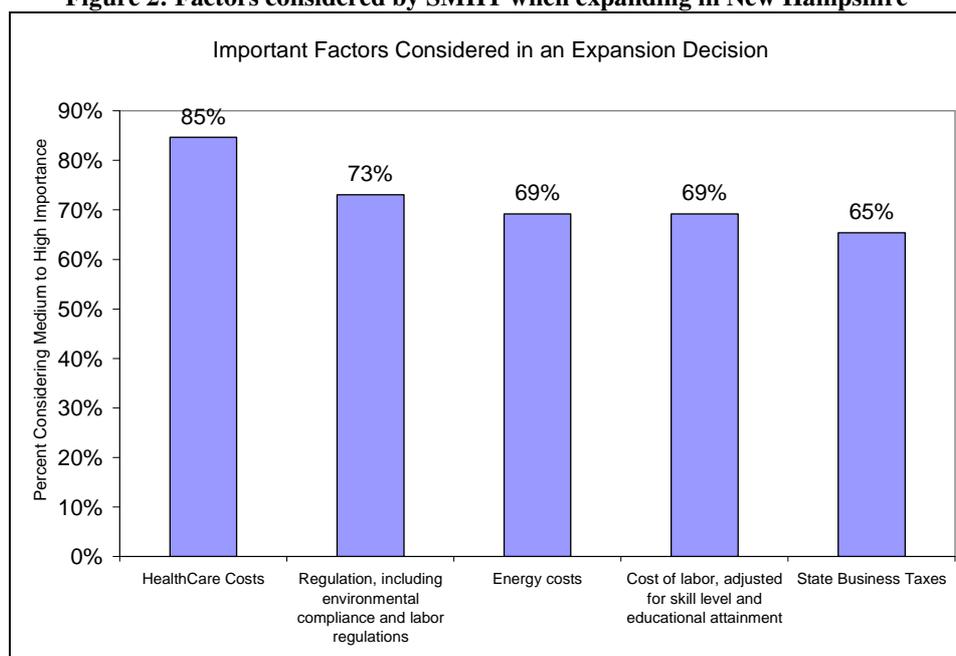
<sup>1</sup> U.S. Manufacturing Competitiveness Initiative at Compete.org

tourism industry, the industry often linked anecdotally with New Hampshire's economy. And while SMHT companies represent 8% of the companies paying the state's Business Profits and Business Enterprise taxes, those same companies accounted for 23% of the total business tax revenue in FY2008, the highest of any industrial sector.

Not surprisingly, there is a significant economic impact associated with the creation of SMHT jobs. Economic impact models suggest that the creation of 100 new manufacturing jobs in New Hampshire will create as many as 138 additional jobs in the rest of the state economy, add \$11 million in earnings, \$18 million in Gross Domestic Product (GDP), and generate \$1.2 million in state and local tax revenue. Creating 100 new healthcare or tourism jobs has a much smaller return on investment. (See page 15.)

This paper also examines the advantages and disadvantages facing New Hampshire SMHT companies when competing with other states and countries (See page 17). According to our research, higher wages, health care costs, and energy costs are New Hampshire disadvantages (Figure 2). The state's top advantages, according to survey respondents, are low overall personal tax burden, the quality of the New Hampshire labor force and the state's quality of life.

**Figure 2: Factors considered by SMHT when expanding in New Hampshire<sup>2</sup>**



Finally we list some of the ways policymakers can encourage the establishment and growth of smart manufacturing and high technology jobs in the state, by trying to preserve the state's competitive advantages and mitigate its disadvantages. The primary factors that policy makers need to focus on include healthcare policy, investments in education and infrastructure, and tax policy.

<sup>2</sup> See Figure 11: Online Survey – Competitive Pressures in this report

## **Smart Manufacturing and High Technology: New Hampshire's Leading Economic Sector**

### **Definition of Smart Manufacturing/High Technology (SMHT)**

There is no one comprehensive, widely-accepted definition of Smart Manufacturing and High Technology (SMHT). The phrase is used by many organizations in different, sometimes conflicting, ways. One of the most widely used definitions of Smart Manufacturing involves the use of technology to improve products and/or processes, with the relevant technology being described as “advanced,” “innovative,” or “cutting edge.” The definitions of high technology employment often include occupations in both manufacturing and nonmanufacturing industries.

The Center reviewed and rejected a number of different definitions of advanced manufacturing as too narrow. As a result, for the purposes of this report, the Smart Manufacturing/ High Technology (SMHT) sector includes manufacturers engaged in the transformation of materials into new products using advanced technology and skilled labor. All of New Hampshire's 2,073 manufacturing companies arguably fall within the above definition as competitive pressures have led manufacturers to make the best use of technology and skilled labor to improve products and/or processes. The relevant technologies are often described as “advanced,” “innovative,” or “cutting edge.” New Hampshire's 1,600 high technology companies engaged in software publishing, computer systems design and scientific research are also included in our SMHT definition.

Smart Manufacturing focuses on the occupational skill sets and technology used by companies to produce goods. This is the definition used by the Department of Labor Employment and Training Administration, and also the US Council on Competiveness. The point is that all manufacturing requires skilled employees in order to be successful. Also, all manufacturers used advanced manufacturing techniques, including lean manufacturing, supply chain management, customer-focused innovation, advanced talent management, systemic continuous improvement, extended enterprise management, sustainable product and process development, and global engagement.

Examples of manufacturing companies in New Hampshire included in SMHT are Hypertherm, Cirtronics, Hitchiner Manufacturing, Sturm Ruger, Markem-Imaje, Amphenol TCS, Elektrisola, Thermo Fisher Scientific, New England Wire Technology, Monadnock Paper, and Globe Manufacturing. A table of 2009 annual employment and wage data by manufacturing subsector is available in Appendix IV. In addition, Dynamic Network Services, Inc., Ektron, Optima Technologies, Great Bay Medical Products, ScaleTera Renewable Energy, LLC, and Sunrise Labs are examples of software publishing, computer systems design and scientific research companies also included in New Hampshire SMHT.

### **Recent History of SMHT in New Hampshire**

The following table (Table 1) shows the number of companies, the level of employment and the average weekly wage for SMHT establishments, for each of the years 2001 through 2009. As of 2009, there were over 3,700 SMHT companies in New Hampshire, employing almost 80,000 people, and paying an average wage of more than \$1,200 per week.

Table 1: New Hampshire SMHT 2001 to 2009

<b>New Hampshire Smart Manufacturing and High Technology Based on the Skill Set Measure</b>	Total Manufacturing	Software Publishers	Computer systems design and related services	Scientific research and development services	<b>Total Manufacturing and High Tech</b>	Total NH Private Employment	Mfg/ High Tech as % of Private Employment
<b>2001</b>							
Average firms	2,444	181	979	156	<b>3,760</b>	40,434	9.3%
Average employment	97,412	4,077	6,376	1,579	<b>109,444</b>	531,225	20.6%
Average weekly wage	\$859.65	\$1,529.37	\$1,379.67	\$1,415.92	<b>\$922.92</b>	\$691.51	133.5%
<b>2002</b>							
Average firms	2,374	163	931	155	<b>3,623</b>	40,372	9.0%
Average employment	84,818	3,380	5,092	1,583	<b>94,873</b>	521,320	18.2%
Average weekly wage	\$886.70	\$1,542.36	\$1,453.81	\$1,449.93	<b>\$949.89</b>	\$703.84	135.0%
<b>2003</b>							
Average firms	2,316	142	928	147	<b>3,533</b>	40,644	8.7%
Average employment	80,265	3,042	4,776	1,279	<b>89,362</b>	520,362	17.2%
Average weekly wage	\$928.04	\$1,561.04	\$1,463.20	\$1,460.05	<b>\$985.80</b>	\$724.91	136.0%
<b>2004</b>							
Average firms	2,310	162	969	148	<b>3,589</b>	41,550	8.6%
Average employment	80,049	2,898	5,246	1,422	<b>89,615</b>	529,461	16.9%
Average weekly wage	\$973.96	\$1,843.06	\$1,466.13	\$1,512.19	<b>\$1,039.42</b>	\$760.66	136.6%
<b>2005</b>							
Average firms	2,255	152	1,071	159	<b>3,637</b>	42,067	8.6%
Average employment	80,064	2,911	5,903	1,475	<b>90,353</b>	536,173	16.9%
Average weekly wage	\$1,002.00	\$1,903.86	\$1,516.56	\$1,577.30	<b>\$1,074.07</b>	\$788.93	136.1%
<b>2006</b>							
Average firms	2,219	144	1,126	165	<b>3,654</b>	42,884	8.5%
Average employment	78,329	2,847	6,205	1,482	<b>88,863</b>	541,435	16.4%
Average weekly wage	\$1,066.51	\$1,917.93	\$1,657.28	\$1,857.27	<b>\$1,148.23</b>	\$827.48	138.8%
<b>2007</b>							
Average firms	2,189	126	1,241	124	<b>3,680</b>	43,055	8.5%
Average employment	77,762	2,667	6,675	1,269	<b>88,373</b>	543,800	16.3%
Average weekly wage	\$1,109.42	\$2,039.26	\$1,644.30	\$1,831.76	<b>\$1,188.25</b>	\$852.45	139.4%
<b>2008</b>							
Average firms	2,158	120	1,330	137	<b>3,745</b>	43,108	8.7%
Average employment	75,912	3,055	7,308	1,441	<b>87,716</b>	541,768	16.2%
Average weekly wage	\$1,126.95	\$2,278.30	\$1,740.09	\$2,083.74	<b>\$1,233.85</b>	\$870.64	141.7%
<b>2009</b>							
Average firms	2,073	116	1,390	140	<b>3,719</b>	42,508	8.7%
Average employment	68,054	2,871	6,647	1,478	<b>79,050</b>	517,634	15.3%
Average weekly wage	\$1,120.98	\$2,209.00	\$1,738.00	\$1,844.00	<b>\$1,225.90</b>	\$867.00	141.4%
<b>Percent Change 2001 to 2009</b>							
Average units	-15.2%	-35.9%	42.0%	-10.3%	-1.1%	5.1%	
Average employment	-30.1%	-29.6%	4.3%	-6.4%	-27.8%	-2.6%	
Average weekly wage	30.4%	44.4%	26.0%	30.2%	32.8%	25.4%	

Source: US Bureau of Labor Statistics

SMHT companies account for 9% of New Hampshire's private sector employers, but they employ more than 15% of New Hampshire's private sector workers. The average weekly wage for SMHT workers is 40% higher than the average weekly wage for all private sector employees working in New Hampshire. The table also shows a decline in the number of employees in the SMHT sector, from almost 110,000 in 2001 to just fewer than 80,000 in 2009. Jobs in the SMHT sector in New Hampshire have fallen because of the decline in the economy due to increased productivity, globalization of the economy, and to the Great Recession.

### ***Short-Term SMHT Trends and the Current Economic Crisis, 2005-2009***

National manufacturing production showed steady increases between the end of 2001 and 2007. During this period, the manufacturing production index grew by 16%. The index for computer and electronic products saw the highest growth, increasing by 85% between 2001 and 2007. However, after 2007, the production index for manufacturing fell dramatically, bottoming out at 85.4 in the second quarter of 2009 – levels last seen in 1998. Between 2005 and 2009, nearly all of the manufacturing industries measured saw a decrease in production. However, two commodities showed growth during this period: computer and electronic products (up 31%) and aerospace and miscellaneous transportation (up 19%).

The economy began contracting and was on its way to recession at the end of 2007. Conditions eroded substantially soon after the subprime financial shock in the summer of 2007, and turned measurably worse by the end of 2007. Real GDP growth came to a standstill in the fourth quarter of 2007, and declined thereafter.

The end of 2008 brought a global financial upheaval. Oil prices dropped from \$140 to \$30 per barrel, but that was of little comfort, since the cause of plummeting energy prices was a global financial panic. The world financial system at times appeared on the verge of collapse, arguably the worst since the 1929 stock market crash.

The loss in aggregate demand translated into employment declines throughout the economy from December of 2007 through June of 2009 (the official beginning and end points of the Great Recession). The 6% decline in total U.S. employment (all jobs including manufacturing) since December 2007 was twice the average decline in employment in the usual post World War II recession. Industrial production declined by almost 17% from December 2007 to June of 2009, again twice the average of the typical post World War II recession. The US unemployment rate increased by 6.0% (from 4.4% to 10.4%), which was again twice the typical increase in unemployment in prior recessions.

### ***The Current State of U.S. Manufacturing, Early 2010***

In the first quarter of 2010, the manufacturing production index increased by 4% compared to the first quarter of the previous year, with both durable and nondurable manufacturing reporting increases. Among manufacturing industries, motor vehicles and parts (up 35%), and primary metals (up 34%) showed the highest increase in production compared to the first quarter of 2009.

While manufacturing employment was still lower through the second quarter of 2010 than in the second quarter of the previous year, it has been increasing each month since January 2010. In the

first six months of 2010, manufacturing employment has grown faster than overall nonfarm employment.

In the first quarter of 2010, manufacturing productivity increased by 7% compared to the first quarter of 2009. This is after a 2% decrease in the first quarter of 2009, compared to the first quarter of the previous year. Durable and nondurable manufacturing productivity also increased, with durable manufacturing productivity up 9% compared to the first quarter of 2010 and nondurable manufacturing productivity up 5%. In comparison, overall nonfarm business productivity increased 6% during the first quarter of 2010 compared to the first quarter of the previous year.

## The Impact of SMHT on New Hampshire's Economy

SMHT industries are critical to the New Hampshire economy. In 2009 total compensation, including wages and benefits paid by all New Hampshire private and public sector employers totaled \$34.5 billion (Table 2.) Wages and benefits paid by SMHT companies totaled \$6.4 billion in 2009, up from \$3.7 billion in the year 1990.

**Table 2: Total Compensation Paid by New Hampshire Industries; 1990, 2000 and 2009**

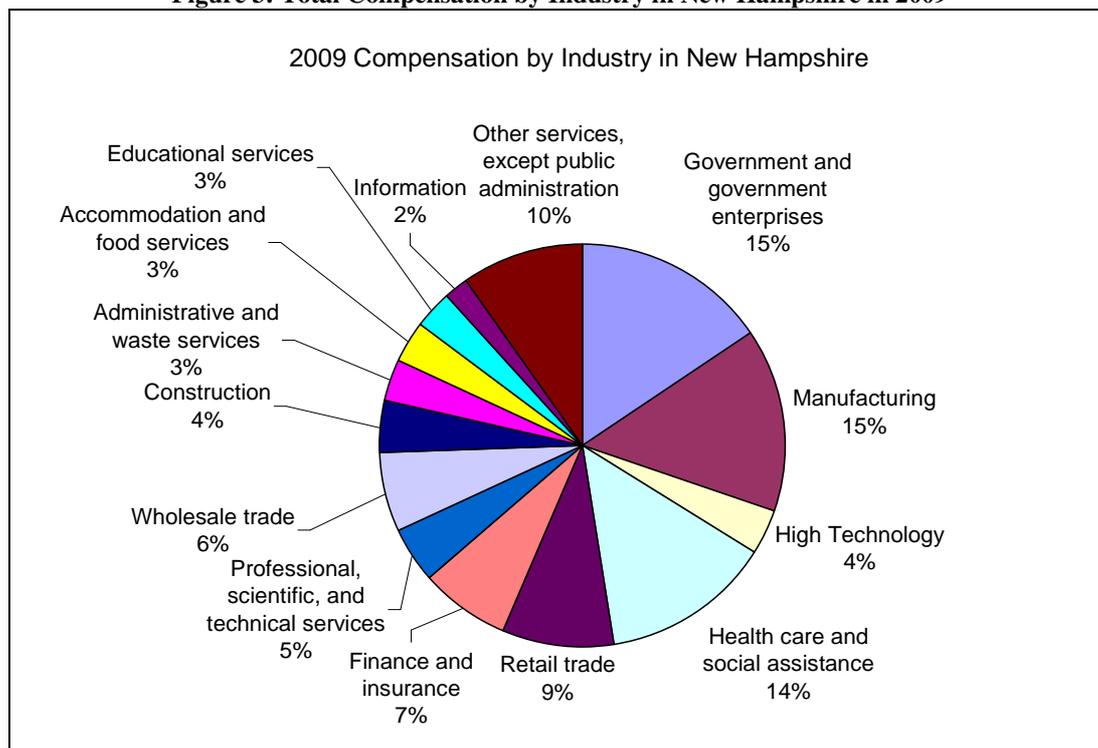
<b>Total Compensation Paid by New Hampshire Nonfarm Industries in 1990, 2000, and 2009</b>			
(Thousands of Dollars)	<u>2009</u>	<u>2000</u>	<u>1990</u>
Manufacturing Companies	\$5,071,826	\$5,542,059	\$3,443,383
High Technology Companies	\$1,314,801	\$802,806	\$235,462
<b>Subtotal of Above (SMHT)</b>	<b>\$6,386,627</b>	<b>\$6,344,865</b>	<b>\$3,678,845</b>
Government and government enterprises	\$5,343,124	\$3,193,819	\$2,142,881
Health care and social assistance	\$4,681,816	\$2,467,588	\$1,257,042
Retail trade	\$3,000,310	\$2,480,693	\$1,422,466
Finance and insurance	\$2,493,594	\$1,619,773	\$798,984
Professional, scientific, and technical services	\$1,587,191	\$1,217,680	\$478,256
Wholesale trade	\$2,202,364	\$1,773,755	\$803,539
Construction	\$1,412,615	\$1,172,512	\$683,069
Administrative and waste services	\$1,183,593	\$747,772	\$318,359
Accommodation and food services	\$1,113,144	\$818,344	\$435,092
Educational services	\$1,073,240	\$573,667	\$289,207
Information	\$623,371	\$589,195	\$261,268
Other services, except public administration	\$3,390,778	\$2,693,842	\$1,363,418
	\$34,491,766	\$25,693,506	\$13,932,425

SMHT Equals Manufacturing plus High Technology Companies

Source: US Bureau of Economic Analysis

Together, New Hampshire Smart Manufacturing and High Technology companies accounted for 19% of total wages and benefits paid in 2009, as shown in Figure 3, making SMHT the largest single sector of the New Hampshire economy. In 2009, the next largest sector was government and government enterprises, followed by healthcare and social assistance.

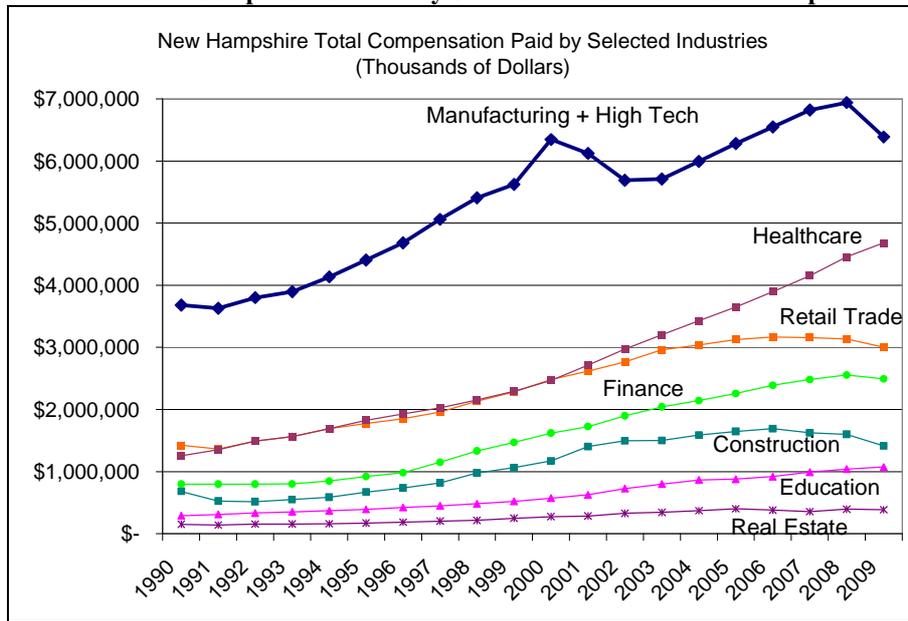
**Figure 3: Total Compensation by Industry in New Hampshire in 2009**



Source: US Bureau of Economic Analysis

Manufacturing has long been the leading industrial sector in the New Hampshire economy, as measured by the total compensation paid compared to other industries. Health care and social assistance has risen as a percent of overall economic activity, increasing from 9% of total compensation paid by New Hampshire nonfarm industries in 1990 to 14% in 2009. However, SMHT remains the single largest sector by this measure of economic activity, at 19% in the year 2009. The trends in total compensation for selected industries in New Hampshire are shown in Figure 4 below.

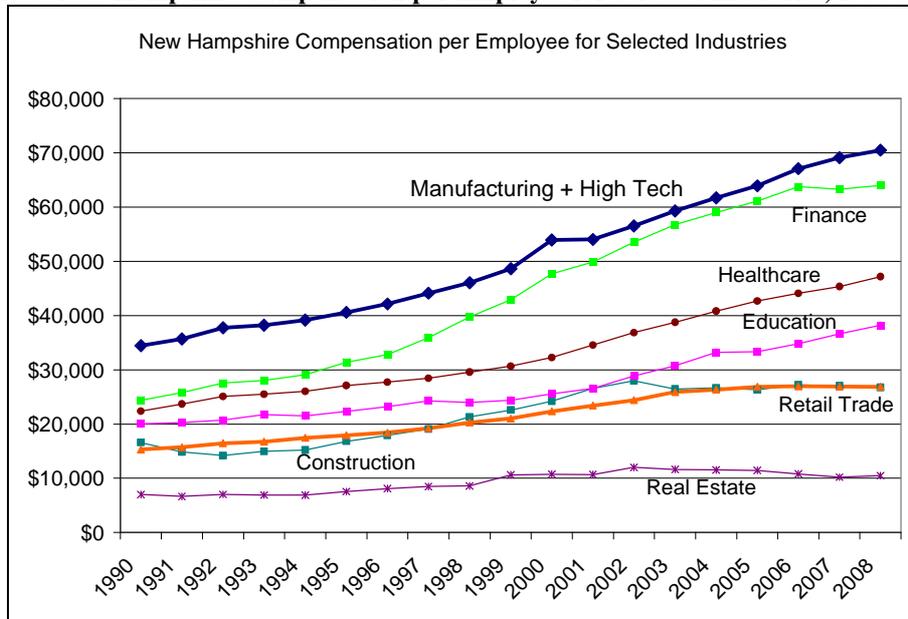
**Figure 4: Trends in Total Compensation Paid by Selected Industries in New Hampshire 1990 to 2009**



Source: US Bureau of Economic Analysis

More importantly, the SMHT employers are a source of high wage jobs for New Hampshire workers. As shown in Figure 5, the average compensation (including wages and benefits paid) per SMHT employee has exceeded average wages and benefits paid in every other industry sector, including construction, healthcare, education, retail trade and even financial services.

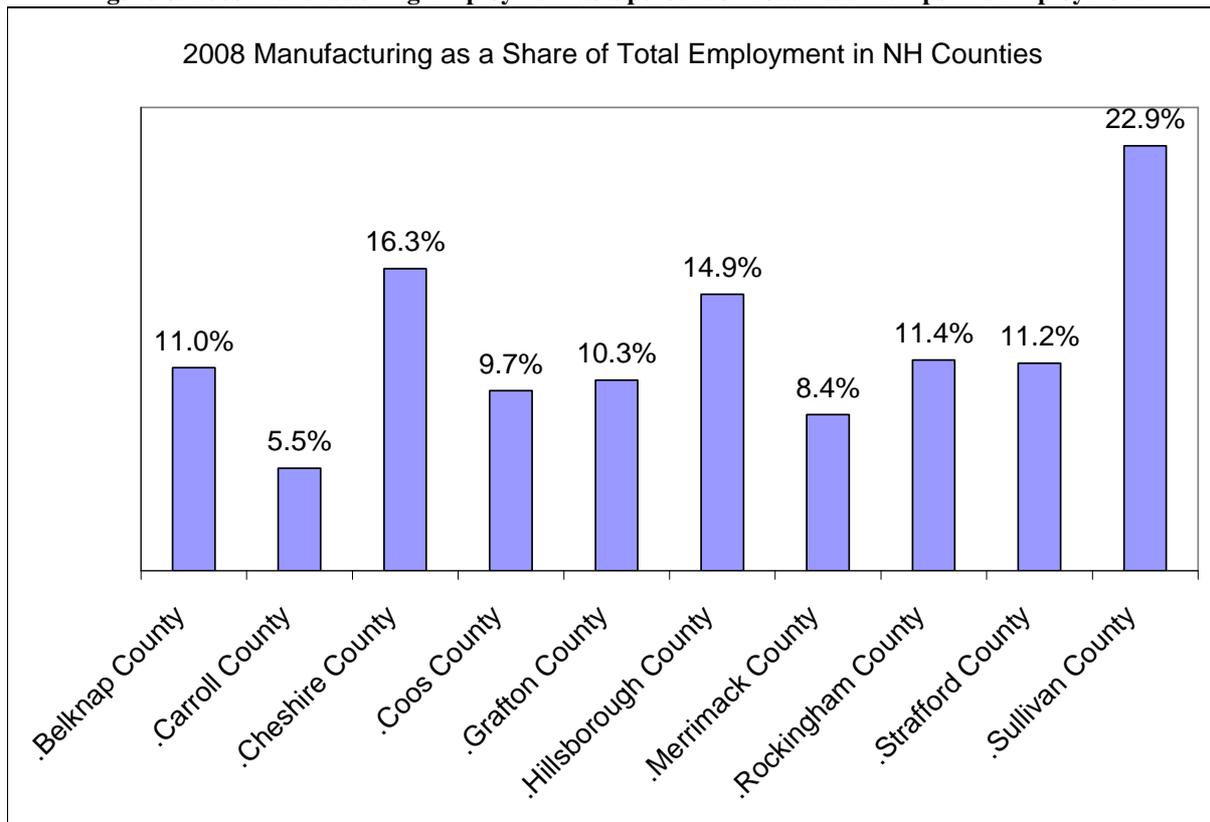
**Figure 5: New Hampshire Compensation per Employee for Selected Industries, 1990 to 2009**



Source: US Bureau of Economic Analysis

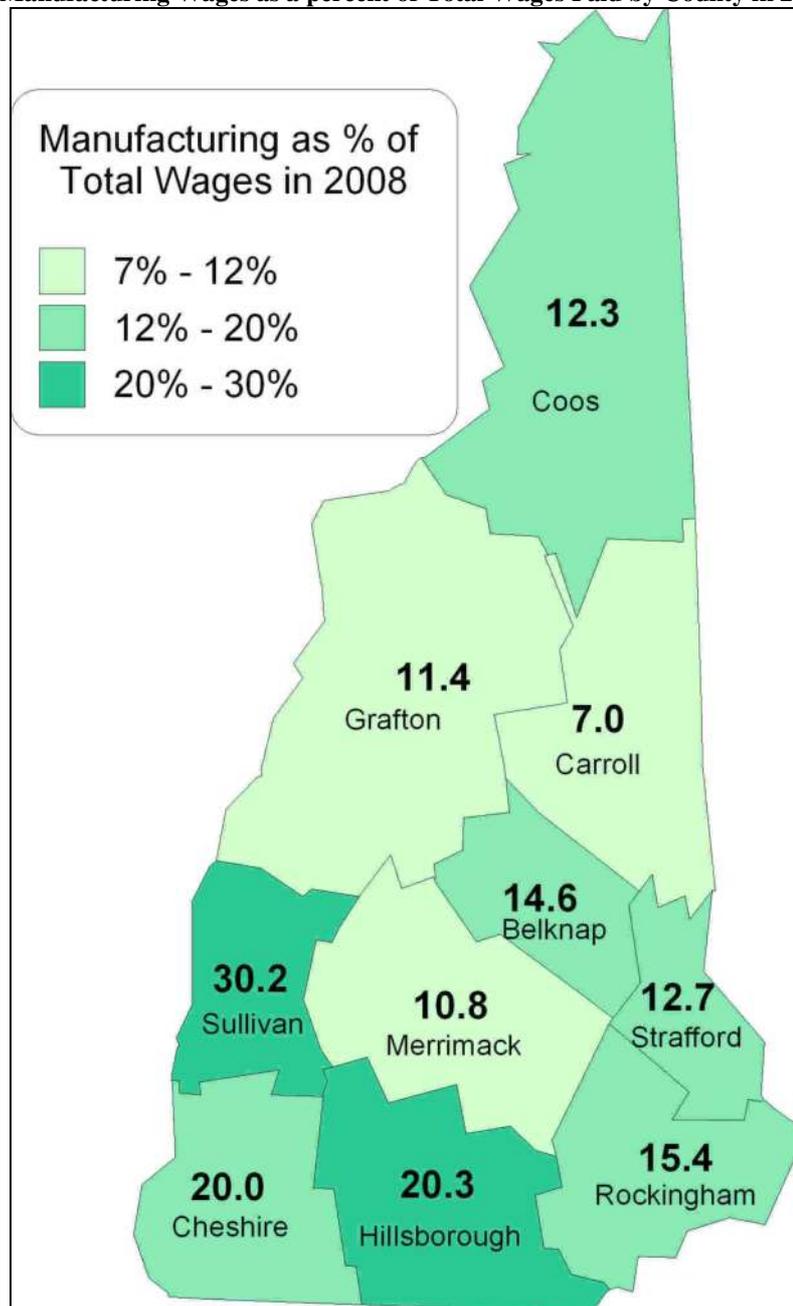
The importance of manufacturing in the makeup of regional economic activity varies by county in New Hampshire. Sullivan County has the highest concentration of manufacturing employment. Carroll County, a prime tourist destination that is part of the Mt. Washington Valley and also borders Lake Winnepesaukee, has the smallest portion of employment in manufacturing. Manufacturing employment as a percent of total employment in 2008 by county is shown in Figure 6, and manufacturing wages as a percent of total wages paid in 2008 by county are shown in Figure 7.

**Figure 6: 2008 Manufacturing Employment as a percent of Total New Hampshire Employment**



Source: New Hampshire Department of Employment Security

Figure 7: Manufacturing Wages as a percent of Total Wages Paid by County in 2008



Source: New Hampshire Department of Employment Security

### ***Manufacturing Exports Bring Wealth to New Hampshire***

A total of 2,264 companies exported goods from New Hampshire to other countries in 2008. Of those, 1,996 (88%) were small and medium-sized enterprises (SMEs), with fewer than 500 employees. SMEs generated 42% of New Hampshire's total exports of merchandise in 2008.<sup>3</sup> This was the ninth highest share among the states and well above the national average of 31%. (Data from 2008 are the latest available.)<sup>4</sup>

In 2008, foreign-controlled companies employed 40,400 workers in New Hampshire. Major sources of New Hampshire's foreign investment included the United Kingdom, France, Canada, and Germany. Roughly two-fifths (39%) of these jobs, or 14,800 workers, were in the manufacturing sector. Foreign-controlled companies accounted for 18.9%, nearly one-fifth, of total manufacturing in New Hampshire. That was the third-highest figure among the 50 states. Foreign investment in New Hampshire was responsible for 7.2% of the state's total private-industry employment in 2008. Examples of foreign controlled companies in New Hampshire are BAE Systems, Inc. (United Kingdom); Lindt & Sprüngli (Switzerland); Elektrisola, Inc. (Germany); and Markem-Imaje (France)

Export-supported jobs (from international trade) linked to manufacturing in 2008 accounted for an estimated 5.6% of New Hampshire's total private-sector employment. Nearly one-quarter (23.3%) of all manufacturing workers in New Hampshire depend on international exports for their jobs. For example, for the first-half of 2009, the Manchester-Nashua metropolitan area exported \$830 million in merchandise – or 47% of New Hampshire's total merchandise exports to other countries.

New Hampshire's international export shipments of merchandise in 2009 totaled \$3.1 billion. The state's largest market in 2009 was Mexico, which received exports of goods of \$767 million, or 25% of New Hampshire's total exports that year. Mexico was followed by Canada (\$449 million), China (\$212 million), Japan (\$179 million), and Germany (\$173 million). The state's leading manufactured export category is computers and electronic products, which alone accounted for \$1.2 billion, or 40% of New Hampshire's total export shipments in 2009. Other top manufactured exports that year were machinery manufactures (\$559 million in exports); electrical equipment, appliances and parts (\$221 million); and miscellaneous manufactures<sup>5</sup> (\$148 million).

According to a study by Professor Larry Goss of Plymouth State University, manufacturing is the most important export industry in terms of employment size for the state's economy, with

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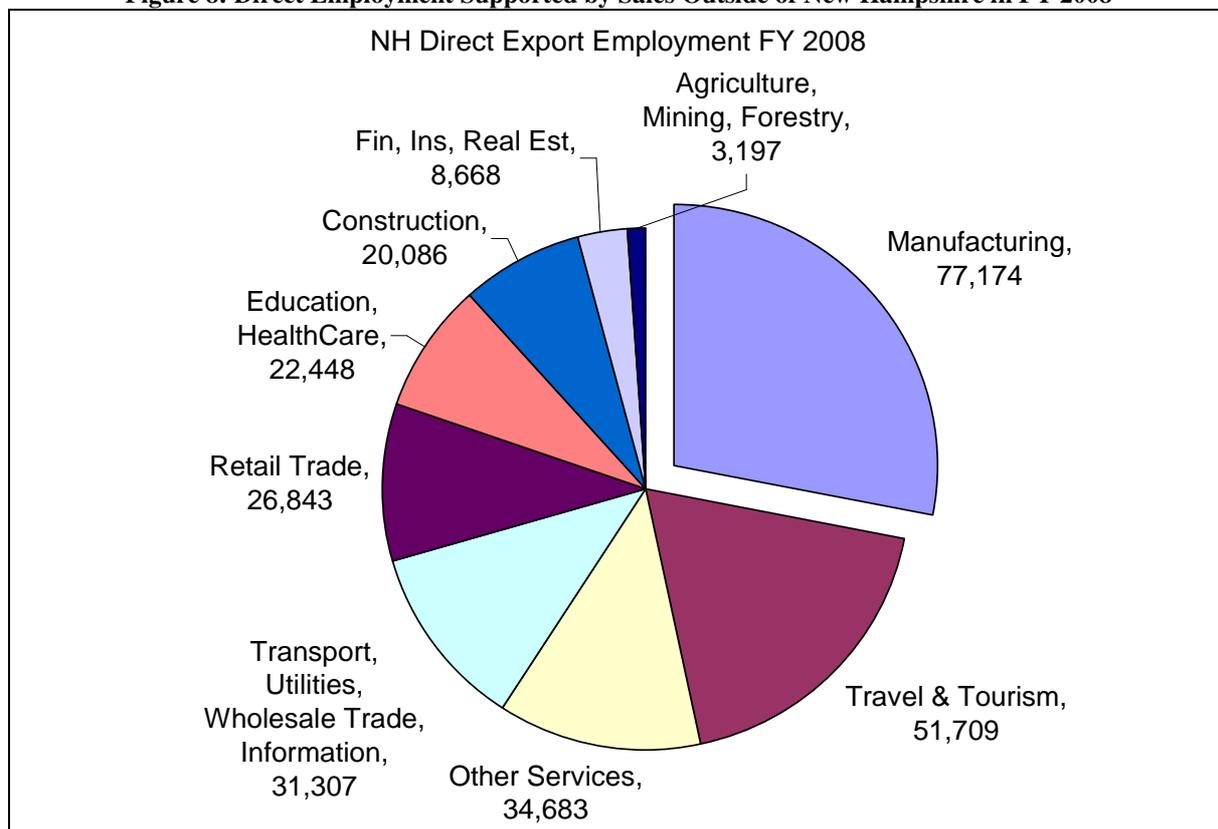
<sup>3</sup> Small to Medium Size Enterprises (SME), as defined by the International Trade Administration, U.S. Department of Commerce.

<sup>4</sup> Data in this section from the State Export-Related Employment Project, International Trade Administration and Bureau of the Census, as well as the U.S. Department of Commerce, Bureau of Economic Analysis. ([http://www.trade.gov/mas/ian/statereports/states/tg\\_ian\\_002741.asp](http://www.trade.gov/mas/ian/statereports/states/tg_ian_002741.asp))

<sup>5</sup> This major group includes establishments primarily engaged in manufacturing products not classified in any other manufacturing major group. Industries in this group fall into the following categories: jewelry, silverware, and plated ware; musical instruments; dolls, toys, games, and sporting and athletic goods; pens, pencils, and artists' materials; buttons, costume novelties, miscellaneous notions; brooms and brushes; caskets; and other miscellaneous manufacturing industries.

travel and tourism as the second largest employer<sup>6</sup>. According to Dr. Goss's calculations, over 77,000 jobs are directly supported by the exports of the state's manufacturers, compared to about 52,000 jobs in travel and tourism. Jobs supported directly by sales outside of the state are shown in Figure 8.

**Figure 8: Direct Employment Supported by Sales Outside of New Hampshire in FY 2008**

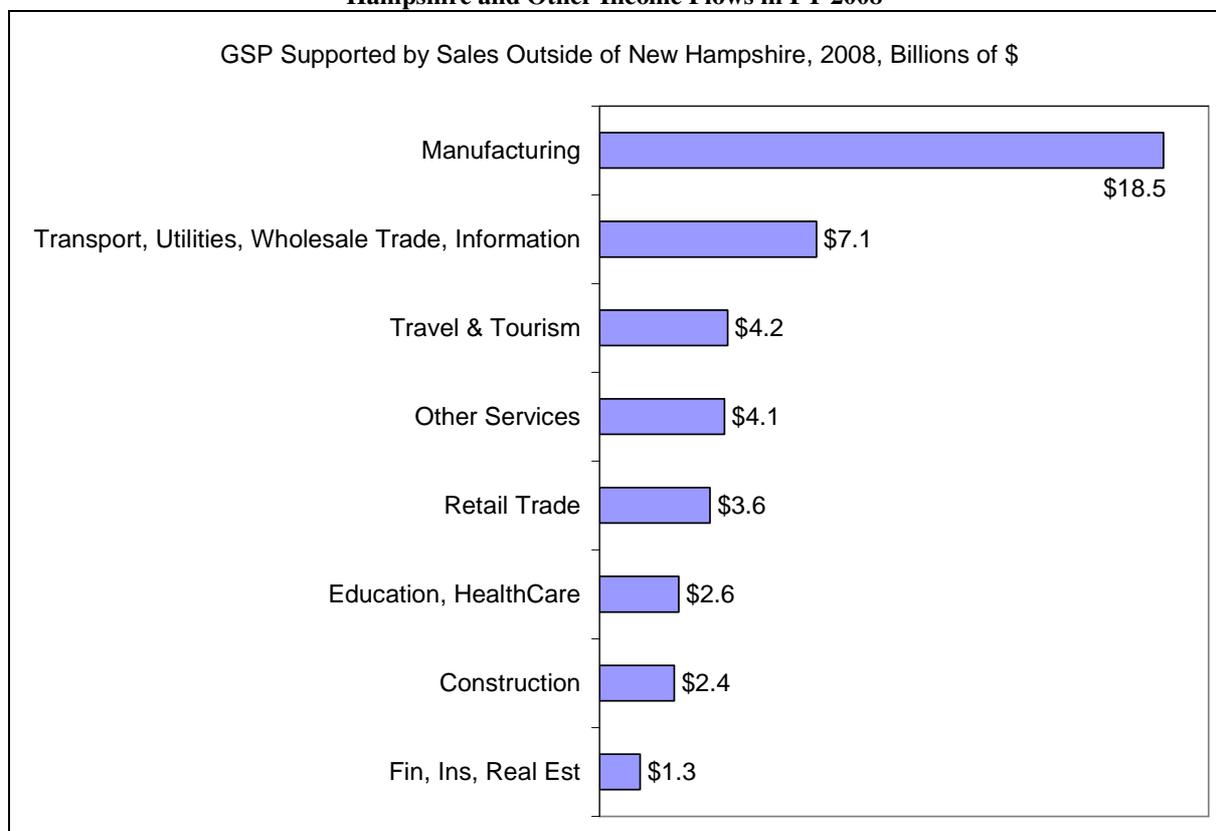


Source: New Hampshire Fiscal Year 2008 Tourism Satellite Account, Table 15

However, when share of gross state product is used as the measure of an industry's supporting share of the state's economy, then travel and tourism ranks as the third most important exporting industry, due to relatively low wages per employee. Said another way, New Hampshire imports four times as much wealth from in-state manufacturing activities as from tourism [manufacturing supports \$18.5 billion in GSP, while tourism supports \$4.2 billion (Figure 9.)] While tourism remains important for many different reasons, (the state's brand, among others), it is clear from our research that manufacturing, together with high technology, drives NH's economy.

<sup>6</sup> Goss, Laurence. "New Hampshire Fiscal Year 2008 Tourism Satellite Account." Plymouth State University. Plymouth, NH. June, 2009. Dr. Goss's definition of New Hampshire exports includes all goods and services "beyond its borders". This definition is much broader because it includes New Hampshire exports to other states in the United States, as well as international trade.

**Figure 9: Direct, Indirect and Induced Share of Gross State Product Supported by Sales Outside of New Hampshire and Other Income Flows in FY 2008<sup>7</sup>**



Source: New Hampshire Fiscal Year 2008 Tourism Satellite Account, Table 16 in that report

Manufacturing's much larger contribution to state economic activity, relative to tourism, is not surprising. Tourism jobs are usually in retail trade, accommodations, and food services, which are relatively low-paying occupations (see Figure 5). By comparison, manufacturing's higher wages means it lends more support to GSP from sales outside of the state. While many manufacturing jobs do not require a college education, they are not unskilled, and workers are paid a premium based on their higher skills.

<sup>7</sup> "In recent years, a number of states have started to measure the relative importance of the travel and tourism industry by calculating its share of the state's economic base in terms of gross state product, rather than by employment. This report presents the share of various industries and economic sectors in the state in terms its export's contribution to gross state product. The U.S. Bureau of Economic Analysis reported that the total gross state product for New Hampshire during state FY 2008 was \$59,913,000,000. ....manufacturing is still the most important economic sector in terms of its impact of total gross state product, at almost one-third of the total. The four industry sector of transportation, utilities, wholesale trade and information supported 12.1 percent of gross state product with exported goods and services." Source: 2008 Tourism Satellite Account

### State Business Taxes Paid by the Manufacturing Sector

In FY2008 New Hampshire manufacturing companies represented 8% of the companies paying the state's Business Profits and Business Enterprise taxes. However, those same companies accounted for 23% of the total business tax revenue. Out of the \$480 million in business taxes identified by major industry code, manufacturing companies accounted for \$125 million (Table 3.)<sup>8</sup>

**Table 3: New Hampshire State Business Taxes by Major Industry**

New Hampshire Business Tax Revenues by Industry Group Source: NH Dept of Revenue						
Industry	TotalPaid FY06	TotalPaid FY07	TotalPaid FY08	Count FY06	Count FY07	Count FY08
110 Agriculture, Forestry, Fishing & Hunting	\$1,948,097.11	\$1,537,624.29	\$1,416,661.46	469	445	394
210 Mining	\$643,851.92	\$541,185.90	\$318,938.85	57	59	53
220 Utilities	\$6,801,343.47	\$20,399,639.35	\$11,713,546.62	73	68	59
230 Construction	\$16,554,341.02	\$16,560,167.62	\$14,980,598.06	4,479	4,188	3,790
311 Manufacturing: Food, consumables, goods	\$12,415,760.92	\$17,375,399.76	\$20,827,053.98	214	204	187
321 Manufacturing: Wood Products	\$22,810,936.24	\$24,109,321.68	\$15,370,957.13	603	569	520
332 Manufacturing: Metal Products	\$68,213,478.87	\$63,771,597.38	\$72,350,667.43	1,460	1,381	1,288
420 Wholesale Trade	\$46,462,374.63	\$48,451,372.06	\$38,361,385.14	1,747	1,667	1,507
440 Retail Trade	\$65,736,881.83	\$64,645,812.53	\$53,207,967.19	3,470	3,142	2,891
480 Transportation & Warehousing	\$7,372,609.88	\$7,887,854.75	\$6,784,160.68	674	631	547
490 Transportation & Warehousing, postal & storage	\$261,275.51	\$291,954.77	\$194,835.80	40	42	33
510 Information	\$16,533,816.38	\$16,507,046.63	\$47,248,594.36	412	377	326
520 Finance & Insurance	\$73,205,680.94	\$48,997,199.97	\$40,480,460.97	1,168	1,086	1,026
530 Real Estate & Rentals	\$48,047,617.56	\$52,192,700.98	\$48,182,902.25	3,723	3,485	3,197
540 Professional, Scientific & technical services	\$32,338,706.24	\$27,050,482.03	\$28,546,665.08	3,643	3,431	3,196
550 Management of companies	\$30,507,450.12	\$25,299,601.48	\$25,334,188.39	222	210	187
560 Administrative support, waste mgmt & remediation	\$6,402,374.90	\$8,864,365.64	\$6,620,645.24	894	825	772
610 Educational services	\$1,098,193.30	\$645,063.18	\$816,186.79	152	136	134
620 Health care & social assistance	\$17,344,394.75	\$16,539,467.15	\$15,556,701.25	1,489	1,439	1,354
710 Arts, entertainment & recreation	\$4,289,531.04	\$9,660,314.32	\$4,955,301.09	438	431	382
720 Accommodation & Food services	\$8,341,173.64	\$13,058,956.12	\$16,972,079.30	1,378	1,260	1,132
810 Other services, except public administration	\$5,756,055.46	\$4,689,045.43	\$4,382,342.70	1,544	1,450	1,332
900 Public administration	\$312,850.69	\$245,285.09	\$384,905.36	134	129	118
990 Miscellaneous	\$6,500,098.42	\$7,132,007.26	\$5,974,026.44	245	243	237
Total	\$499,898,894.84	\$496,453,465.37	\$480,981,771.56	28,728	26,898	24,662
Manufacturing as Percent of Above	20.7%	21.2%	22.6%	7.9%	8.0%	8.1%
Unmatched PIA codes	\$122,234,158.00	\$150,824,619.00	\$182,640,291.00	19,060	21,718	24,582
Grand Total	\$622,133,052.84	\$647,278,084.37	\$663,622,062.56	47,788	48,616	49,244

Source: New Hampshire Department of Revenue Administration

<sup>8</sup> As shown on Table 3 total business tax revenue in 2008 was approximately \$664 million. The Department of Revenue Administration did not have industry codes (PIA codes) for 24,582 business taxpayers, who paid almost \$183 million in that year.

## What is an SMHT Job Worth in New Hampshire?

Recently Fairpoint Communications released an economic scenario model which allows Northern New England economic development and planning professionals to see the impact of new developments and opportunities on their specific region.<sup>9</sup> In Table 4, Table 5, and Table 6 below we show the economic scenario model results for New Hampshire, assuming the state added 100 new manufacturing jobs, 100 new health care jobs, and 100 new tourism jobs.

**Table 4: Economic Impact of Adding 100 Manufacturing Jobs in New Hampshire**

<b>Add 100 Manufacturing jobs in New Hampshire and the result is:</b>						
	<b>Employment</b>	<b>Earnings</b>	<b>GDP</b>	<b>Output</b>	<b>Personal Income</b>	<b>State and Local Tax</b>
Direct	100	\$ 5,793,259	\$ 10,394,227	\$ 31,557,796	\$ 8,346,766	\$ 634,354
Indirect + Induced	138	\$ 5,640,610	\$ 7,654,723	\$ 23,240,446	\$ 8,126,833	\$ 617,639
<b>Total</b>	<b>238</b>	<b>\$ 11,433,869</b>	<b>\$ 18,048,950</b>	<b>\$ 54,798,242</b>	<b>\$ 16,473,599</b>	<b>\$ 1,251,994</b>

**Table 5: Economic Impact of Adding 100 Healthcare Jobs in New Hampshire**

<b>Add 100 Healthcare jobs in New Hampshire and the result is:</b>						
	<b>Employment</b>	<b>Earnings</b>	<b>GDP</b>	<b>Output</b>	<b>Personal Income</b>	<b>State and Local Tax</b>
Direct	100	\$ 3,286,675	\$ 4,849,702	\$ 8,760,193	\$ 4,735,350	\$ 359,887
Indirect + Induced	55	\$ 1,748,870	\$ 4,098,749	\$ 7,403,719	\$ 2,519,723	\$ 191,499
<b>Total</b>	<b>155</b>	<b>\$ 5,035,545</b>	<b>\$ 8,948,451</b>	<b>\$ 16,163,912</b>	<b>\$ 7,255,073</b>	<b>\$ 551,386</b>

**Table 6: Economic Impact of Adding 100 Tourism Jobs in New Hampshire**

<b>Add 100 Tourism jobs in New Hampshire and the result is:</b>						
	<b>Employment</b>	<b>Earnings</b>	<b>GDP</b>	<b>Output</b>	<b>Personal Income</b>	<b>State and Local Tax</b>
Direct	100	\$ 1,887,312	\$ 3,524,221	\$ 6,464,779	\$ 2,719,187	\$ 206,658
Indirect + Induced	32	\$ 1,154,024	\$ 2,632,381	\$ 4,828,800	\$ 1,662,686	\$ 126,364
<b>Total</b>	<b>132</b>	<b>\$ 3,041,336</b>	<b>\$ 6,156,602</b>	<b>\$ 11,293,579</b>	<b>\$ 4,381,872</b>	<b>\$ 333,022</b>

The economic scenario model is based on economic multipliers and labor employment data. The multipliers reflect the direct, indirect and induced impacts on earnings and jobs resulting from changes in output, jobs or direct earnings in a specific geographic region for various industry categories.<sup>10</sup> This means that adding 100 manufacturing jobs to New Hampshire will create jobs and income in other sectors of the state economy, as the new industry requires support services from other New Hampshire companies, and as those new employees spend money for goods and services in New Hampshire.

As shown in Table 4 above, creating 100 new manufacturing jobs in New Hampshire will result in an additional 138 indirect and induced jobs in the rest of the New Hampshire economy. All of these jobs will create \$11 million in earnings, \$18 million in Gross Domestic Product (GDP), and generate \$1.2 million in state and local tax revenue. As shown in Table 5 above, creating 100 new healthcare jobs in New Hampshire will result in 55 indirect and induced jobs, with a

<sup>9</sup> FairPoint sponsored Connect Northern New England Economic Scenario Model V2.2b

<sup>10</sup> Direct Impact: Employment that can be directly attributed to a particular business, activity or industry.

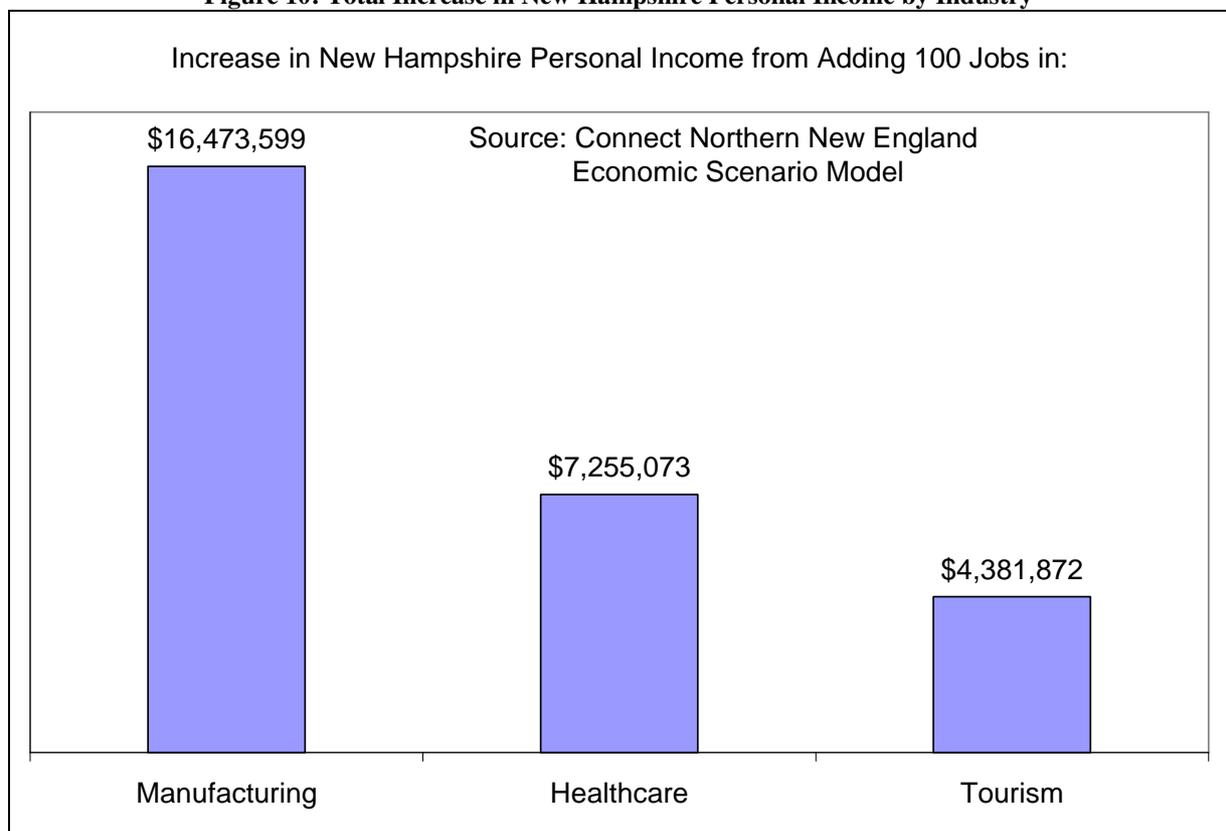
Indirect Employment: Employment in down-stream industries that result from the presence of a particular business, activity or industry. Indirect employment is generally generated in industries that supply or provide services to the direct business, activity or industry.

Induced Employment: Employment generated because of expenditures made by individuals employed directly or indirectly by the particular business, activity or industry.

total of \$5 million in earnings, \$9 million in GDP and \$0.5 million in added state and local tax revenue. As shown in Table 6 above, creating 100 new tourism jobs in New Hampshire will result in 32 indirect and induced jobs, with a total of \$3 million in earnings, \$6.1 million in GDP and \$0.3 million in added state and local tax revenue.<sup>11</sup>

It is clear from the above analysis that jobs created in the manufacturing sector have a significantly higher economic impact than jobs created in health care or in the tourism industries. Manufacturing jobs, because of their high value, high wages and because they import wealth into the region, create more jobs in other sectors of the economy than does health care or tourism. As shown in Figure 10 below, creating 100 jobs in manufacturing results in twice the increase in total personal income compared to creating the same number of jobs in health care. Jobs added to the manufacturing sector create four times the wealth in the overall economy, compared to creating the same number of jobs in the tourism industry.

**Figure 10: Total Increase in New Hampshire Personal Income by Industry**



<sup>11</sup> In this exercise personal income is estimated outside of the economic scenario model based on the historical ratio of personal income to total earnings. State and local tax revenue is estimated based on the historical ratio of state and local taxes to personal income, from an annual study by the Tax Foundation.

## **Competitive Pressures Facing New Hampshire SMHT Companies**

Manufacturing is the industrial sector most affected by the “mega-trends” transforming the economy. Globalization, off-shoring and outsourcing, the rapid pace of technological change, and rising costs of health care and other labor costs all have a profound impact on manufacturing. Consider globalization: The average school administrator or housing professional probably does not think much about the Far East. But because state-of-the-art manufacturing facilities are now being built in China and elsewhere in the world, local manufacturers have to stay current with the latest technological advances just to stay in the game.

In order to better understand the competitive pressures faced by New Hampshire SMHT companies, the Center pursued three separate research initiatives.

- First, the Center conducted an online survey of New Hampshire SMHT companies, asking those companies to express in their own words the competitive advantages and disadvantages of operating a company in New Hampshire.
- Second, the Center examined the input costs of a select group of competitor states and countries – areas of the U.S. and the world that are most likely to compete with our SMHT companies.
- Finally, the Center examined other studies which rank the states (and sometimes other parts of the world) according to input costs, tax policy and regulatory policy.

### ***The Survey of SMHT Companies in New Hampshire***

In the last weeks of September 2010, the New Hampshire Center for Public Policy Studies administered an online survey for New Hampshire manufacturing/high technology companies. An email notice of the survey was sent to 70 New Hampshire BIA member companies in the SMHT sector. An email notice of the survey was also sent to the membership of the New Hampshire High Technology Council, a trade organization for many New Hampshire high technology companies. By the end of September 2010, 26 companies had responded to the online survey, a response rate in excess of 25%.<sup>12</sup>

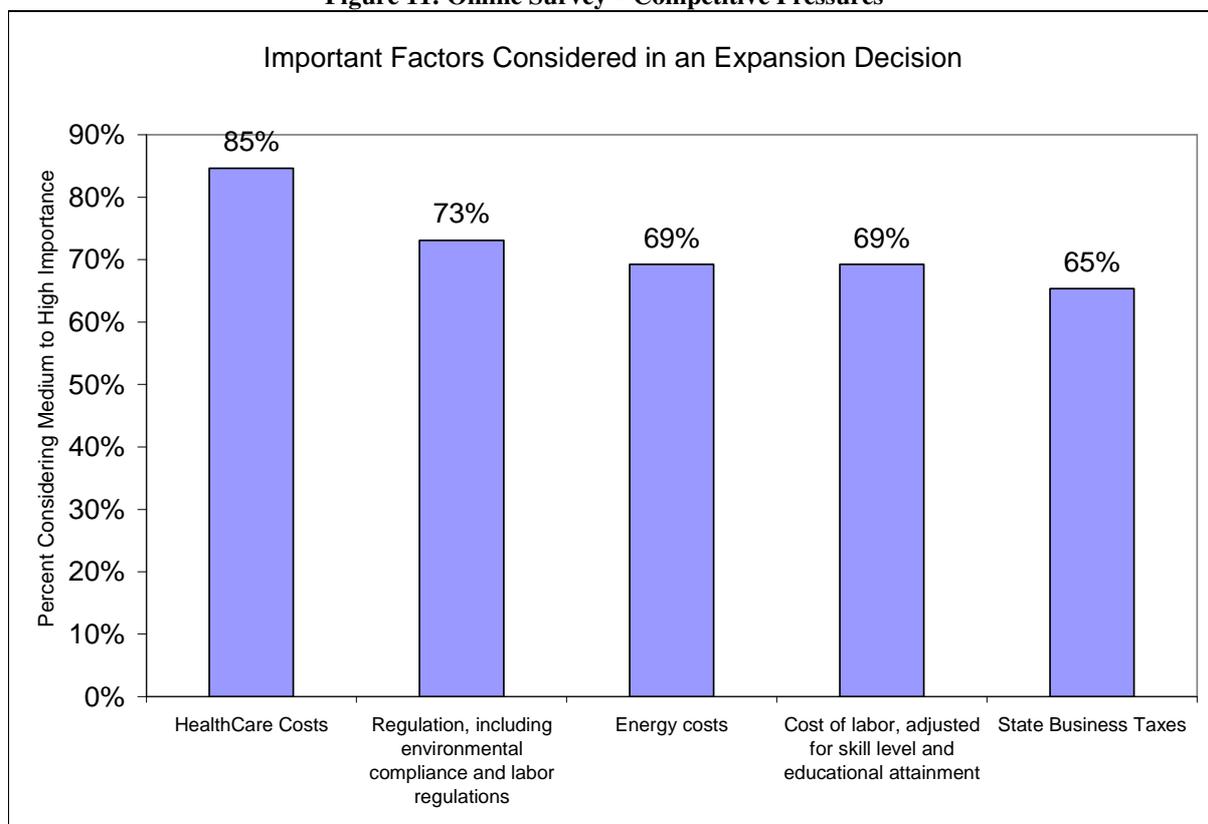
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<sup>12</sup> Online surveys are sometimes characterized as not being statistically meaningful, but only useful as a means of beginning to understand potential questions and issues. This is because typically the respondents to an online survey are not a random (unbiased) selection of a larger population, and also that those who do respond to the online survey are self-selected. However, online surveys can be more properly thought of as a census; a procedure of systematically acquiring and recording information about the members of a given population. In this case the given population is the membership of the Business and Industry Association and High Technology Council, specifically those members who have been identified as SMHT companies. The Center has determined, based on the advice of survey research professionals, that response rates above 20% imply that the sample respondents are representative of the given population.

SMHT survey respondents were first asked to rank the competitive pressures they operate under, in particular when considering continuing or increasing production at a New Hampshire-based facility. Respondents were asked to rank the importance of factors on a scale of 1 to 5 (1=low importance to 5=high importance).

As shown on Figure 11, health care costs were the most critical factor SMHT companies weigh when they consider continuing or increasing production in New Hampshire. Regulation, energy costs, costs of labor and state business taxes were also important considerations.

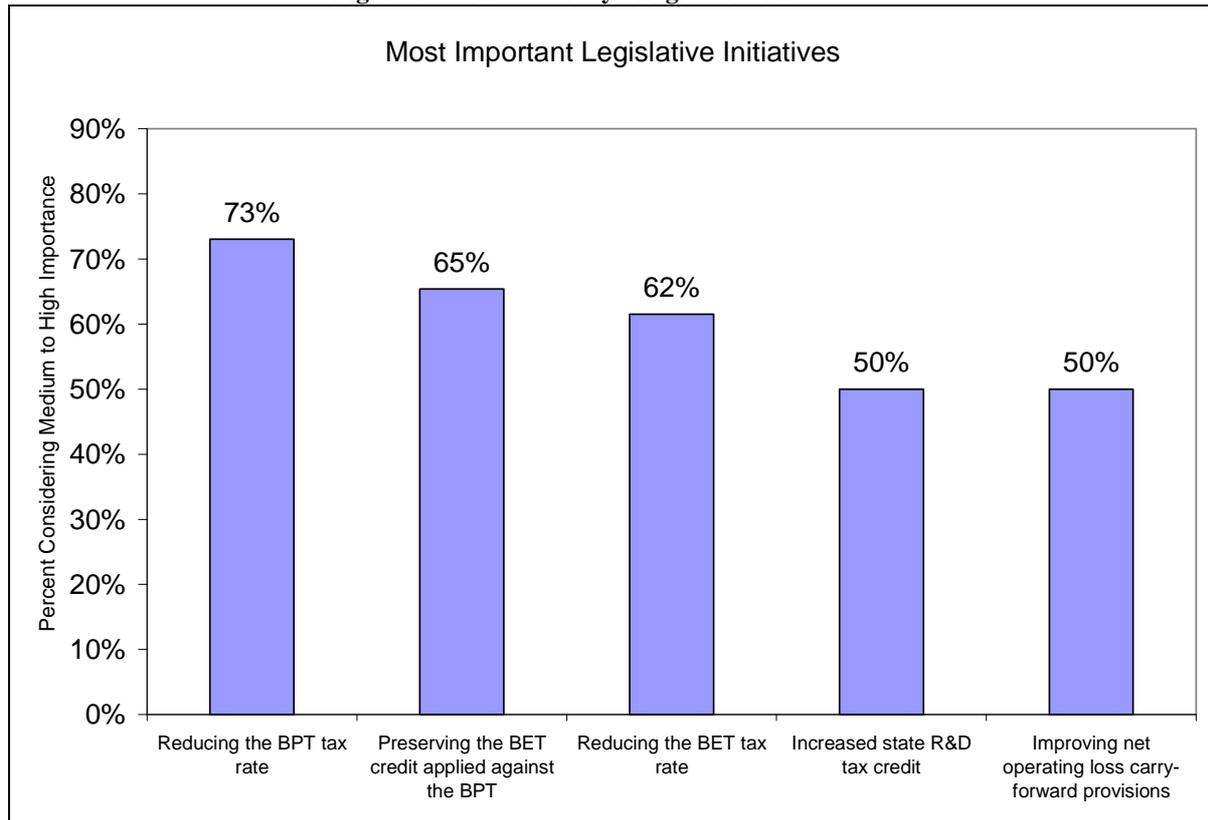
**Figure 11: Online Survey – Competitive Pressures<sup>13</sup>**



<sup>13</sup> Question: “We know your company faces significant competitive pressures from around the country and the globe. Please rank the importance of the following factors on a scale of 1 to 5, (1=low importance to 5=high importance), when you consider continuing or increasing production at a New Hampshire-based facility:”

SMHT respondents were asked to consider legislative initiatives they might consider important to a decision to expand their company in New Hampshire. As shown on Figure 12, reducing the BPT tax was considered the most important legislative tax initiative, followed by preserving the BET credit applied against the BPT, and reducing the BET tax rate.<sup>14</sup>

Figure 12: Online Survey - Legislative Initiatives<sup>15</sup>

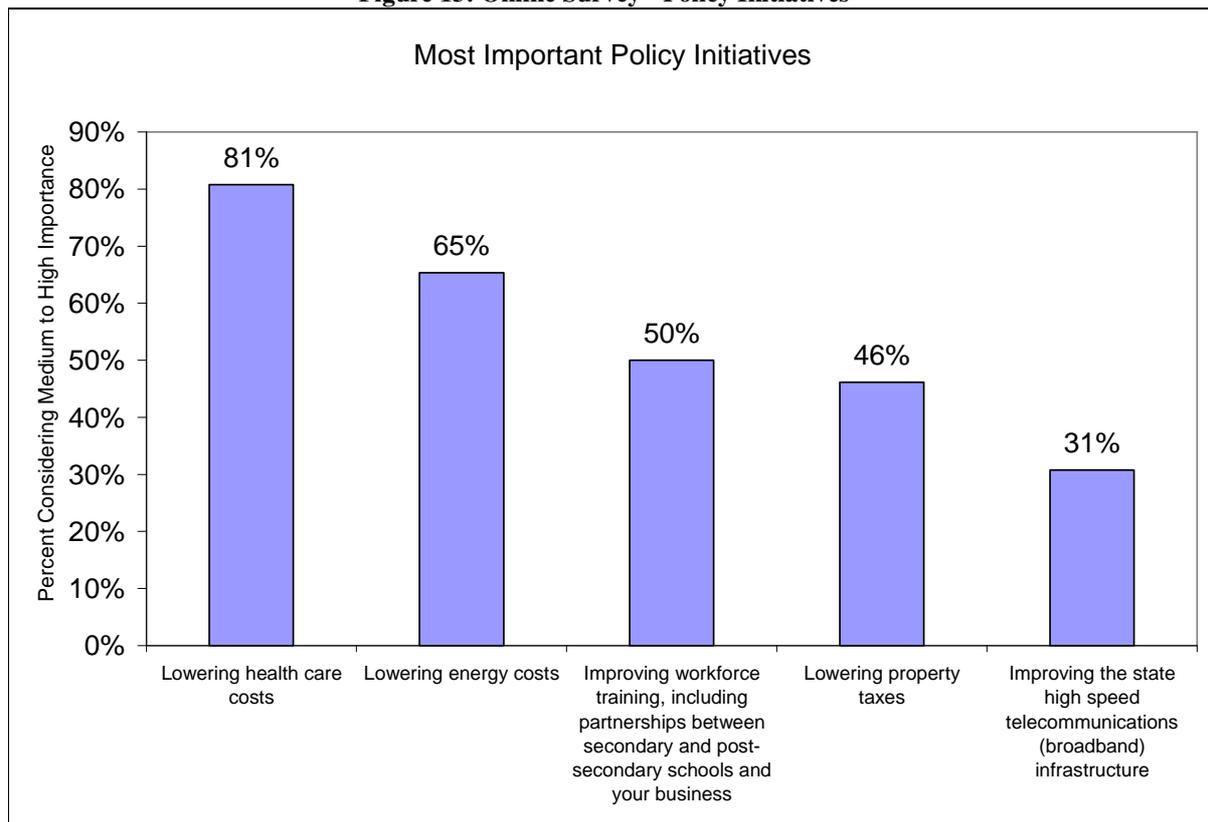


<sup>14</sup> New Hampshire levies both an 8.5% Business Profits Tax (BPT) and a 0.75% Business Enterprise Tax (BET) on companies. The BET is assessed on the enterprise value tax base, which is the sum of all compensation paid or accrued, interest paid or accrued, and dividends paid by the business enterprise, after special adjustments and apportionment. Businesses can credit their BET liability against their BPT liability.

<sup>15</sup> Question: "Which of the following New Hampshire legislative initiatives are most important (on a scale of 1 to 5) if you were to consider expanding your company in New Hampshire?"

SMHT respondents were also asked to consider additional policy initiatives they would rank most important if they were to consider expanding in New Hampshire. As shown on Figure 13 lowering health care costs was by far the most important policy initiative, followed by lowering energy costs, and by “improving workforce training, including partnerships between secondary and post-secondary schools and your business.”

**Figure 13: Online Survey - Policy Initiatives<sup>16</sup>**



SMHT companies place high value on the quality and work ethic of New Hampshire’s workforce, the state’s business-friendly attitude, accessible government, low personal tax burden, and high quality of life. SMHT businesses expressed concern about the state’s fiscal situation and concern that taxes might increase. The southern United States (North and South Carolina, Texas, Florida), India, Mexico and China were mentioned as places where SMHT companies have considered expanding or growing operations, as an alternative to New Hampshire.

Additional comments provided on the survey for each question are shown in Appendix III to this report.

<sup>16</sup> Question: “Which of the following New Hampshire policy initiatives would you consider most important (on a scale of 1 to 5) if you were to consider expanding in New Hampshire?”

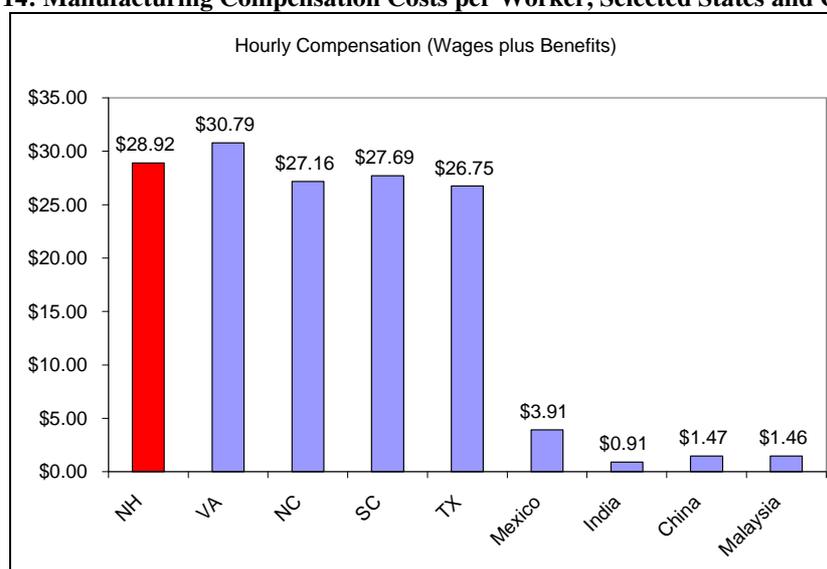
### ***Input Costs and Competitor States/Countries***

The Center also gathered data from all available sources to develop its own comparison of New Hampshire competitor states and countries. The competitor states in the United States were chosen based on interviews with New Hampshire SMHT company executives and economic development professionals who identified Virginia, North Carolina, South Carolina and Texas as New Hampshire's primary competitor states from an economic development perspective. One or more of these states appear on other lists of "the best states for business," and all four states appear on the Area Development Magazine "Top States for Doing Business: A Survey of Site Selection Consultants" list.<sup>17</sup>

Competitor countries were also selected in this manner. The final choice for New Hampshire competitor countries was based on the responses to an online survey of New Hampshire manufacturing executives. Respondents were asked "On those occasions when your company is considering expanding or growing operations, which other states or countries do you consider (compared to New Hampshire) and why?" Earning several mentions were China, India, Mexico and "Southern Asia." The Center added Malaysia as a country representative of Southern Asia. Malaysia, a middle-income country, has transformed itself since the 1970s from a producer of raw materials into an emerging multi-sector economy, according to the CIA Fact Book.

Wages across competitive states and countries show New Hampshire wages slightly above most competitor states, and dramatically higher than competitor countries, shown on Figure 14.

**Figure 14: Manufacturing Compensation Costs per Worker, Selected States and Countries**

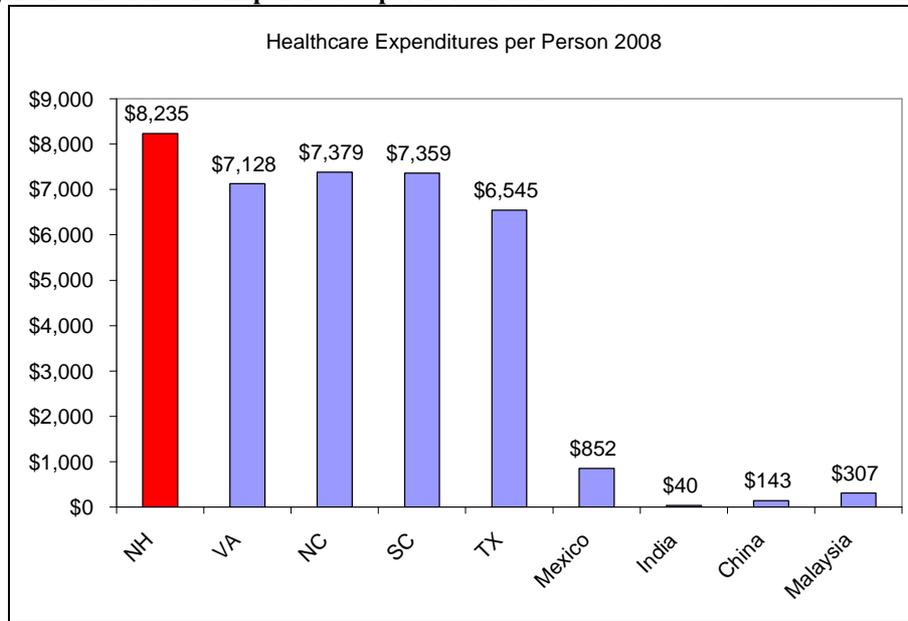


Source: US Bureau of Labor Statistics

<sup>17</sup> Appendix I includes a list of resources documenting various efforts at identifying the degree of business 'friendliness.'

Health care costs are higher in New Hampshire than in most states, and ten times higher than in the nearest competitor country.

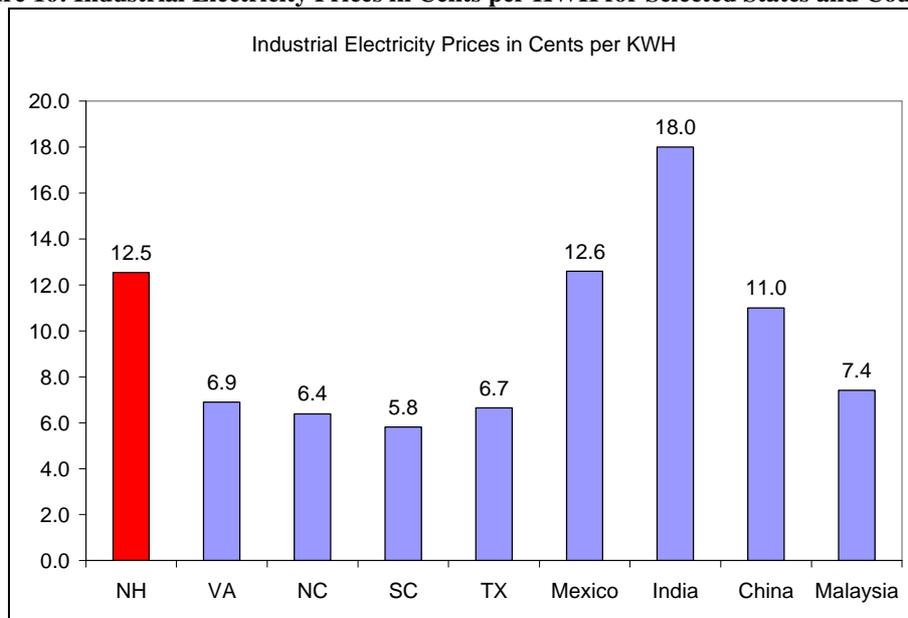
**Figure 15: Health care Expenditures per Person in 2008 for Selected States and Countries**



Source: Kaiser State Health Facts and WorldBank.org

Industrial electricity prices in New Hampshire are almost twice as high as in New Hampshire’s identified competitor states. Electricity costs in New Hampshire are comparable to Mexico and China. (Figure 16.)

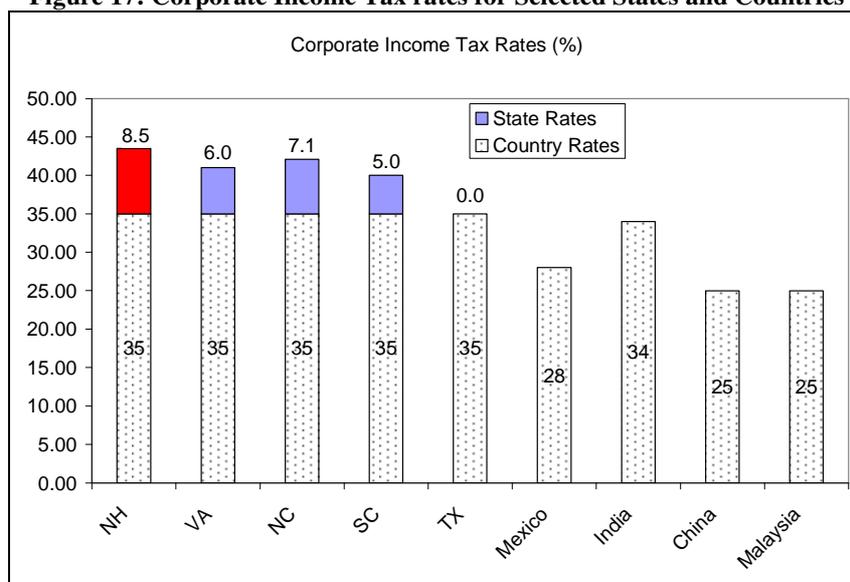
**Figure 16: Industrial Electricity Prices in Cents per KWH for Selected States and Countries**



Source US Department of Energy

As noted, the corporate income tax rate in New Hampshire is the highest among New Hampshire's competitor states, and highest compared to competitor countries, when the U.S. corporate tax rate is included. The comparison on Figure 17 includes national corporate tax rates, along with the corporate tax rates for each U.S. state.

**Figure 17: Corporate Income Tax rates for Selected States and Countries**



Source: New Hampshire Department of Resources and Economic Development, OECD and WorldBank.org

### ***Other Independent Studies of Business Competitiveness***

To further assess the competitive pressures faced by New Hampshire SMHT companies, the Center examined several independent studies of industry competitiveness. Most of these studies were state-to-state comparisons. Two studies looked at the United States overall and its international competitiveness, although one study compared metropolitan areas in the United States with metropolitan areas in other countries.

### **Tax Policy and Competitor States**

The Tax Foundation's 2011 State Business Tax Climate Index shows New Hampshire's overall tax climate is good: seventh best out of 50 states. However, the detailed study data shows that New Hampshire ranks 38th for unemployment insurance taxes, 35th out of the 50 states for property taxes, and last – 50th out of 50 – for corporate taxes. Only the absence of an income tax (New Hampshire ranks 10<sup>th</sup>) and a sales tax (New Hampshire ranks 1<sup>st</sup> among the states because it does not have a broad sales tax) allows New Hampshire to fare so well overall. New Hampshire is compared with the selected competitor states on Table 7.

**Table 7: 2011 Tax Foundation Study Results for New Hampshire and Competitor States**

<b>Major Components of the State Business Tax Climate Index, FY 2011</b>						
Source: Tax Foundation, Report Number 60, October 2010						
	<b>Overall Rank</b>	<b>Corporate Tax Index Rank</b>	<b>Individual Income Tax Rank</b>	<b>Sales Tax Index Rank</b>	<b>Unemployment Insurance Tax Index Rank</b>	<b>Property Tax index Rank</b>
<b>New Hampshire</b>	<b>7</b>	<b>50</b>	<b>10</b>	<b>1</b>	<b>38</b>	<b>35</b>
Virginia	12	4	17	8	29	25
North Carolina	41	25	36	44	6	33
South Carolina	24	9	27	22	43	23
Texas	13	46	7	37	15	29

Source: The Tax Foundation

### Input Costs and Competitor States

Another study from the University of Connecticut found that New Hampshire was one of the most expensive states in which to operate. The study, "High Wages, Low Costs: A Connecticut Paradox?" calculated it costs 93.5 cents to manufacture a dollar's worth of goods in New Hampshire. The study used manufacturing data from the 2007 census which totaled costs of production materials and labor (including payroll and fringe benefits), license fees and taxes, and annual capital costs (which include interest, rental payments and depreciation), which they divided by the gross output in manufacturing to determine the cost of manufacturing a dollar's worth of goods in each state. By this measure, two of New Hampshire's competitor states have the lowest cost structure in the United States (Table 8).

**Table 8: 2007 Unit Costs for Manufacturing in New Hampshire and Competitor States**

<b>High Wages, Low Costs: A Connecticut Paradox?</b>				
Source: The Connecticut Economy, November 2010				
	<b>Gross Output (Thousands of Dollars)</b>	<b>Gross Costs (Thousands of dollars)</b>	<b>Cost to produce a dollar of output</b>	<b>Rank in the US Highest to Lowest Cost</b>
<b>New Hampshire</b>	<b>18,905,986</b>	<b>17,678,524</b>	<b>\$0.935</b>	<b>2</b>
Virginia	92,214,316	70,795,283	\$0.768	49
North Carolina	205,610,830	147,646,842	\$0.718	50
South Carolina	94,662,922	81,813,103	\$0.864	10
Texas	602,051,743	504,129,742	\$0.837	23

### Business Careers and Competitor States

A recent Forbes.com study comparing the best states for business and careers shows that New Hampshire ranked 19th out of 50 states, slightly better than the middle of the pack (Table 9). However, this better-than-average finish is due in large part to high marks the state received for labor supply, growth prospects and quality of life. When looking at criteria that have a direct fiscal impact on businesses, New Hampshire does not fare so well, ranking 40th out of 50 states for business costs and 47th out of 50 for regulatory environment. Every competitor state has a better business cost and regulatory rank than New Hampshire, and only South Carolina has a lower overall rank.

**Table 9: Forbes “Best States for Business 2010” New Hampshire and Competitor State Rankings**

Overall Rank in 2010	State	Business Cost Rank	Labor Supply rank	Regulatory Environment Rank	Economic Climate Rank	Growth Prospects Rank	Quality of Life Rank	Population	Gross State Product (\$Bil)
19	New Hampshire	40	6	47	32	5	2	1,328,700	\$50
2	Virginia	24	3	2	4	14	6	7,927,400	\$329
3	North Carolina	3	15	3	18	9	32	9,460,300	\$322
34	South Carolina	26	28	8	43	26	45	4,587,000	\$125
7	Texas	26	21	17	2	1	38	25,010,700	\$912

Source: <http://www.forbes.com/2010/10/13/best-states-for-business-business-beltway-best-states.html>

## International Manufacturing Competitiveness

U.S. manufacturing competitiveness will continue to decline, according to the 2010 Global Manufacturing Competitiveness Index (GMCI). Index projections suggest by 2015 Brazil will have overtaken the U.S. for fourth in the global rankings behind China, India and the Republic of Korea. The report concludes that increasing talent pools worldwide, coupled with higher U.S. wages, have placed U.S. manufacturing at a disadvantage in the global markets. However, the U.S. should remain at the forefront of manufacturing innovation due to a focus on strengthening science and technology research, the strong intellectual property rights (IPR), technology transfer policy, and science, technology, engineering and mathematics (STEM) initiatives.

The report was created through a partnership between Deloitte's Global Manufacturing Industry group and the U.S. Council on Competitiveness. Based on survey responses from more than 400 senior global manufacturing executives and key government decision makers, researchers developed an index that ranked the “10 drivers of global manufacturing competitiveness.” Respondents also were asked to rate the overall manufacturing competitiveness of 26 countries for 2010 and 2015.

Worldwide, respondents agreed that talent-driven innovation is the top ranked driver of global manufacturing. The “Asian juggernauts” (China, India and Korea) and other nations expected to increase their competitiveness (Brazil, Russia and Poland) have successfully cultivated and retained a strong talent pool comprised of skilled workers, scientists, researchers, engineers, and teachers. Workers capable of fueling innovation and improving production efficiency have overtaken the availability of “cheap labor,” which finished third in the global rankings.

Executives with businesses operating in the United States found the U.S. to have two advantages, but also saw the U.S. as facing several disadvantages in manufacturing competitiveness. Intellectual property protection (75% of respondents) and technology transfer & adoption (61%) are the strongest contributors to U.S. competitive advantage in manufacturing. They are seen to increase U.S. competitiveness due to increased royalty revenues, and they create incentives for further investments in R&D. These advantages keep the U.S. at the cutting edge of manufacturing innovation. However, government policies and laws pertaining to immigration (32.7% of respondents), product liability (42.9%), health care (51.0%) and corporate tax (53.1%)

were reported to be disadvantages to U.S. competitiveness. These policies are seen to increase the cost on producers and “discourage capital investments.” Due to the recent financial interventions (e.g. “bailouts”), government intervention and ownership in companies was ranked as the No. 1 disadvantage (59.2% of respondents) to U.S. competitiveness in manufacturing. In the long-term, respondents believe that government financial intervention and ownership will hurt American competitiveness.

## KPMG 2010 Competitive Alternatives Study for Selected Cities in the U.S. and Other Countries

“Competitive Alternatives” is KPMG's guide to comparing business locations in North America, Europe, and Asia Pacific. Competitive Alternatives 2010 is an expansion and update of previous KPMG publications, and measures the combined impact of 26 significant business cost components that are most likely to vary by location. The study also compares data on a variety of non-cost competitiveness factors. The study examined 17 industry operations in 10 countries: Australia, Canada, France, Germany, Italy, Japan, Mexico, the Netherlands, the United Kingdom, and the United States.

The basis for comparison is the after-tax cost of startup and operations over 10 years. The study had the advantage of looking at specific cities in each country, including Manchester, New Hampshire. A comparison of Manchester, N.H., with select cities in North Carolina, South Carolina, Virginia, Texas and Mexico (the only one of our competitor countries available in the KPMG study) is shown in Table 10.

**Table 10: KPMG Business Cost Index for Selected Cities**

<b>KPMG 2010 Competitive Alternatives Study - Selected Cities</b>		Manchester, NH	Raleigh, North Carolina	Greenville-Spartanburg, South Carolina	Northern Virginia (Metro DC)	McAllen, Texas	Mexico City, Federal, Mexico
Industry	Operation						
<b>Manufacturing</b>							
Aerospace	Aircraft parts	99.3	97.9	97.0	99.2	96.5	86.3
Agri-food	Food processing	100.8	97.7	96.9	98.6	98.2	89.1
Automotive	Auto parts	99.5	97.4	97.0	98.9	97.5	89.2
Chemicals	Specialty chemicals	99.9	98.1	97.5	99.3	96.9	88.8
Electronics	Electronics assembly	99.3	97.5	97.1	99.8	96.6	86.5
Medical devices	Medical device mfg	98.5	96.2	95.9	99.3	94.6	79.5
Metal components	Metal machining	99.3	96.0	95.9	98.9	97.3	84.9
Pharmaceuticals	Pharmaceutical products	98.6	97.1	96.7	99.5	96.0	83.7
Plastics	Plastic products	99.8	95.7	95.6	98.2	97.9	85.3
Precision manufacturing	Precision components	100.1	95.7	97.6	99.1	98.1	91.0
Telecommunications	Telecom equipment	98.9	97.9	97.1	99.4	96.1	85.0
<b>Manufacturing Average of 11 Operations</b>		<b>99.5</b>	<b>97.5</b>	<b>96.9</b>	<b>99.2</b>	<b>96.9</b>	<b>86.7</b>
<b>Corporate &amp; IT Services</b>							
Back office/call centers	Shared services centre	93.2	89.7	86.3	97.0	79.1	47.4
Software design	Software development	97.0	95.1	92.5	98.3	89.1	68.5
Web & multimedia	Content development	97.0	94.9	92.3	98.5	88.7	66.1
<b>Corporate &amp; IT services average of 3 operations</b>		<b>95.9</b>	<b>93.5</b>	<b>90.7</b>	<b>98.0</b>	<b>86.2</b>	<b>61.8</b>
<b>Research &amp; Development</b>							
Biotechnology	Biomedical R&D	91.5	90.5	87.9	99.9	82.0	63.0
Clinical trials	Clinical trials management	97.2	93.6	91.1	98.7	88.4	63.3
Product testing	Electronic systems development & testing	92.5	89.5	86.6	97.7	82.6	59.1
<b>Research &amp; Development Average of 3 operations</b>		<b>93.0</b>	<b>90.7</b>	<b>88.0</b>	<b>98.7</b>	<b>83.5</b>	<b>61.3</b>
<b>Overall result</b>	<b>(Average of 17 operations)</b>	<b>98.6</b>	<b>96.4</b>	<b>95.6</b>	<b>99.0</b>	<b>94.8</b>	<b>82.1</b>

The KPMG study compared each industry in each city to a US average index equal to 100. Manchester had an overall business cost index across 17 industry operations of 98.6, which

means overall costs were 1.4% below the US average. However, Raleigh, N.C.; Greenville-Spartanburg, S.C., and McAllen, Texas all had business cost structures lower than New Hampshire's. Mexico City had an overall business cost index of 82.1, which means business costs in Mexico are almost 18% below the US average across all industries.

As a follow-up to the main KPMG Competitive Alternatives 2010 study discussed above, a separate detailed study of tax costs was released on May 12, 2010. The update revealed that Mexico was in the number one spot for having the lowest total taxes. But changes to the tax systems in Australia, Canada, and the Netherlands enhanced their attractiveness as tax friendly environments. The results from the Competitive Alternatives 2010 Special Report: Focus on Tax report are shown in Table 11.

**Table 11: KPMG 2010 Tax Competitiveness for Selected Countries**

<b>Tax Competitiveness – 2010 and 2008 Rankings by Country</b>			
		<b>Total Tax Index</b>	<b>2008</b>
<b>Rank</b>	<b>Country</b>	<b>2010</b>	<b>rank</b>
1	Mexico	59.9	1
2	Canada	63.9	3
3	Netherlands	76.4	2
4	Australia	80.8	4
5	United Kingdom	88.0	6
6	United States	100.0	5
7	Germany	124.1	8
8	Italy	129.6	9
9	Japan	138.0	7
10	France	181.4	10

## Conclusion

The Center has provided an objective, data-based analysis of the impact of the Smart Manufacturing/High Technology (SMHT) Sector in New Hampshire. We have produced a brief history of New Hampshire's SMHT sector, the status of SMHT in New Hampshire today, and demonstrated that New Hampshire's smart manufacturing/high technology sector is the economic engine in the state.

As of 2009 there were over 3,700 SMHT companies in New Hampshire, employing almost 80,000 people, and paying an average wage of more than \$1,200 per week. SMHT companies account for 9% of New Hampshire's private sector employers, but employ more than 15% of New Hampshire's private sector workers. The average weekly wage for SMHT workers is 40% higher than the average weekly wage for all private sector employees working in New Hampshire.

Jobs created in the manufacturing sector have a significantly higher economic impact than jobs created in health care or in the tourism industries. Manufacturing jobs, because of their high value, high wages and because they import wealth into the region, create more jobs, and more wealth, in other sectors of the economy than any other sector, including health care or tourism.

The state imports four times as much wealth from manufacturing activities in New Hampshire than from tourism.

The Smart Manufacturing/High Technology (SMHT) sector is a critical sector of the New Hampshire economy, but it operates under severe competitive pressures, both from other U.S. states and from abroad. The economic well-being of the state may in no small measure be a function of the state's ability to maintain and encourage the continued growth of this sector.

### ***State Policy Activities and SMHT***

There are many ways policymakers can try to foster and maintain smart manufacturing and high technology jobs in New Hampshire. These policies would include lowering healthcare costs, encouraging workforce development and education, investing in infrastructure, and implementing tax policies that promote manufacturing and high tech growth.

Regarding healthcare policy, the BIA online survey of New Hampshire SMHT companies suggests that these companies take into account healthcare costs as the most significant competitive pressure, when they consider continuing or increasing production at a New Hampshire-based facility (Figure 11). These same companies rank "lowering health care costs" as the most important policy initiative that would influence their decisions to expand their operations in New Hampshire (Figure 13).

With respect to tax policy, maintaining New Hampshire's comparative advantage in the area of personal taxes is clearly important. Companies who answered the online survey for New Hampshire manufacturing/high technology companies cite low overall taxes ("No state sales or income tax - makes finding good employees easier") most often, when asked to name one or two of the most attractive features of New Hampshire's business climate (see Appendix III).

A recent analysis of state business tax incentives in New England showed that business tax credits do foster their targeted activities, and that the economic activity produced indirectly by business tax credits is not trivial, and may sometimes be sizable.<sup>18</sup> And the former Congressional Office of Technology Assessment concluded that, "for every dollar lost in tax revenue, the R&D tax credit produces a dollar increase in reported R&D spending." Other studies have found even greater benefits, with the research investment to tax-cost ratio between 1.3 and 2.9.<sup>19</sup>

The Center's own research suggests that an effective approach to boost economic development is to improve certain public services, like schools and infrastructure. These studies suggest that an approach to economic development that builds the skills of the current and future workforce, improves the physical infrastructure of regions, and makes communities more attractive places for families and firms represents the most effective use of a state's scarce resources.<sup>20</sup>

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<sup>18</sup> New England Public Policy Center DP No. 09-3: State Business Tax Incentives: Examining Evidence of their Effectiveness (December 2009) by Jennifer Weiner

<sup>19</sup> Robert D. Atkinson, "Expanding the R&E tax credit to drive innovation, competitiveness and prosperity", Published online: 24 July 2007, <http://www.itif.org/files/AtkinsonRETaxCreditJTT.pdf>

<sup>20</sup> Prioritizing Approaches To Economic Development In New England: Skills, Infrastructure, And Tax Incentives, Jeffrey Thompson, Political Economy Research Institute, University of Massachusetts, Amherst, August 2010

Another recent study showed that human capital is a key determinant of urban prosperity and that per-capita incomes are strongly correlated with levels of educational attainment.<sup>21</sup>

Increasing the four-year college attainment rate in each of the nation's 51 largest metropolitan areas by one percentage point would be associated with a \$124 billion increase in aggregate annual personal income.

The New Hampshire Advanced Manufacturing Education Advisory Council<sup>22</sup> recently examined issues associated with advanced manufacturing and workforce skills. The Council released a report in late 2010 recommending that the New Hampshire Department of Education:

- Develop and implement strategies for the Advanced Manufacturing sector to educate the parents, educators, and students about career opportunities.
- Increase communication between manufacturing and education to assure alignment with current realities of the Advanced Manufacturing industry.
- Strengthen math education to assure student success in areas relevant to their goals.
- Increase accessibility to advanced pre-engineering/manufacturing education to all students.

There is disagreement in the literature as to which of the above policy levers (healthcare, education, infrastructure or tax policy) are most successful at increasing regional quality of life and improving regional economic development. The questions for New Hampshire policymakers are twofold; which of these policies can the state legislature impact, and which would have the largest impact on stated legislative goals?

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<sup>21</sup> "City Dividends; Gains From Improving Metropolitan Performance", CEOs for Cities, 2010

<sup>22</sup> The New Hampshire General Court passed legislation in 2008 creating the New Hampshire Advanced Manufacturing Education Advisory Council. Members include lawmakers, manufacturers and educators who focused their work on the charge of the council: "to advise the Department of Education in the implementation, evaluation, and expansion of the advanced manufacturing curriculum, to assist the Department of Education in pursuing public and private funds in order to ensure statewide access for all public high school students to advanced manufacturing curriculum coursework."

## **Appendix I: Selecting Competitor States and Countries**

The final choice for New Hampshire competitor states was based on a conversation with Department of Resources and Economic Development Commissioner George Bald, who identified Virginia, North Carolina, South Carolina and Texas as New Hampshire's primary competitor states. One or more of these states appear on other lists of "the best states for business", and all four states appear on the Area Development Magazine "Top States for Doing Business: A Survey of Site Selection Consultants" list.

The final choice for New Hampshire competitor countries was based on the responses to an online survey of New Hampshire manufacturing executives. When asked "On those occasions when your company is considering expanding or growing operation, which other states or countries do you consider (compared to New Hampshire), and why?", China, India, Mexico and "Southern Asia" were mentioned several times. The Center added Malaysia as a country representative of Southern Asia. Malaysia, a middle-income country, has transformed itself since the 1970s from a producer of raw materials into an emerging multi-sector economy, according to the CIA Fact Book.

The studies examined by the Center are detailed below.

### **New Hampshire Competitor States and Other Studies**

Area Development Magazine looked at the most "business friendly" states in a report entitled "Top States for Doing Business: A Survey of Site Selection Consultants" in November 2010. Consultants to industry are in a unique position to understand the site selection requirements of their corporate clients. Taking this into consideration, the editors of Area Development magazine decided to conduct a "flash survey" of a select group of highly respected consultants who work with a nationwide client base. Area Development asked the consultants to name their top 10 state choices for meeting eight site selection criteria:

1. Lowest business costs
2. Most business friendly
3. Corporate tax environment
4. Overall labor climate
5. Work force development programs
6. Fast-track permitting
7. Rail and highway accessibility
8. Shovel-ready sites

Tennessee topped the list of most attractive states for business, as selected by consultants surveyed by Area Development, followed by Texas, South Carolina, Georgia, Indiana, Mississippi, North Carolina, Virginia and Oklahoma.

How did the consultants' picks stack up? To see how the consultants' top choices stack up, Area Development looked at five other well-respected rankings as follows:

Chief Executive's "Best/Worst States for Business 2010"

1. Texas
2. North Carolina
3. Tennessee
4. Virginia
5. Nevada

All of the top five states picked by the CEOs are on the Area Development list of states best meeting site selection criteria, according to the consultants surveyed. Although Nevada only scored well for its corporate tax environment, it still made the consultants' list.

<http://chiefexecutive.net/ME2/dirmod.asp?sid=&type=gen&mod=Core+Pages&gid=50A045DF3B08449AB199B3B6C2348E9B>

CNBC's "America's Top States For Business"

1. Texas
2. Virginia
3. Colorado
4. North Carolina
5. Massachusetts

Three of CNBC's contenders — Texas, Virginia, and North Carolina — were on the Area Development consultants' radar screens. This ranking includes a heavily weighted quality-of-life factor, which was not considered in our survey consultants.

[http://www.cnbc.com/id/37642856/CNBC\\_s\\_Top\\_States\\_For\\_Business\\_2010\\_And\\_The\\_Winner\\_Is\\_Texas](http://www.cnbc.com/id/37642856/CNBC_s_Top_States_For_Business_2010_And_The_Winner_Is_Texas)

Tax Foundation's "2010 Business Tax Climate Index"

1. South Dakota
2. Wyoming
3. Alaska
4. Nevada
5. Florida

The Area Development consultants' agree with the Tax Foundation on Nevada — but the rest of these states were not among their top picks. The Tax Foundation looks at individual as well as business taxes.

<http://www.taxfoundation.org/publications/show/22658.html>

Directorship's "Boardroom Guide to the Best States for Business"

1. Texas
2. Virginia
3. Utah
4. South Dakota
5. Nebraska

Only the top two states — Texas and Virginia — made the consultants' cut. The Boardroom Guide puts an emphasis on states' litigation climate.

<http://www.directorship.com/>

Forbes' "Best States for Business 2010"

1. Utah
2. Virginia
3. North Carolina
4. Colorado
5. Washington

Utah, Virginia, and North Carolina scored high on Forbes' ranking, which includes three factors not included on the Area Development survey: current economic climate, prospects for growth, and quality of life.

[http://www.forbes.com/2010/10/13/best-states-for-business-business-beltway-best-states\\_print.html](http://www.forbes.com/2010/10/13/best-states-for-business-business-beltway-best-states_print.html)

Inc.'s "Top 500, Top 10 States 2009"

1. California
2. Texas
3. Virginia
3. New York
5. Florida

Inc.'s ranking is based on the location of the nation's Top 500 firms in terms of revenue growth. The surveyed Area Development consultants only placed Texas and Virginia on their list of where to grow a business.

<http://www.inc.com/ss/2010-inc-5000-top-10-states>

## **Appendix II: Online Survey Instrument**

September 2010

### **2010 New Hampshire Advanced Manufacturing/High Technology (SMHT) Survey**

This project is intended to convince New Hampshire public policy makers of the key importance of smart manufacturing/high technology (SMHT) to New Hampshire's economic vitality, explore ways the state could promote increased SMHT activity, and highlight areas where New Hampshire is competing poorly with other areas of the country and world. Responses to the survey are strictly confidential, and you will not be added to any other email list.

#### **Competitive Pressures and Your Business**

We know your company faces significant competitive pressures from around the country and the globe. Please rank the importance of the following factors on a scale of 1 to 5, (1=low importance to 5=high importance), when you consider continuing or increasing production at a New Hampshire-based facility:

- State business taxes \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Property taxes \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Unemployment insurance tax \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Workers compensation costs \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Telecommunications taxes \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Regulation, including environmental compliance and labor regulations \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Energy costs \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Healthcare costs \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Cost of labor, adjusted for skill level and educational attainment \*Please rank on a scale from 1 to 5, with 5 meaning most important

- Pressures from organized labor \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Commercial real estate occupancy/ costs \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

Other Competitive Pressures on Your business your chance to tell us about other competitive pressures in your own words.

## Legislative Changes Initiatives

Which of the following New Hampshire legislative initiatives are most important (on a scale of 1 to 5) if you were to consider expanding your company in New Hampshire?

- Increased state R&D tax credit \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Improving net operating loss carry-forward provisions \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- “Single Sales” factor BPT apportionment \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Preserving the BET credit applied against the BPT \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Reducing the BPT tax rate \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Reducing the BET tax rate \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

## Policy Changes or Initiatives

Which of the following New Hampshire policy initiatives would you consider most important (on a scale of 1 to 5) if you were to consider expanding in New Hampshire?

- Lowering health care costs \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Lowering energy costs \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Improving the state transportation infrastructure \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Improving the state high speed telecommunications (broadband) infrastructure \*Please rank each area on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Improving workforce training, including partnerships between secondary and post-secondary schools and your business. \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Greater access to financing \*Please rank each area on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Branding New Hampshire as an Advanced Manufacturing High Technology “destination” (like Silicon Valley, Rte. 128 or the Carolina Research Triangle) \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

- Lowering property taxes \*Please rank on a scale from 1 to 5, with 5 meaning most important

1      2      3      4      5

## **Do you have other locations outside of New Hampshire?**

If the answer is yes, we would appreciate knowing more about your costs at this (these) location(s) outside of New Hampshire. As always, this information will be kept strictly confidential.

What is the average hourly wage, or labor cost, for the location(s) outside of New Hampshire? Please also tell us where the non-New Hampshire location(s) is based

What is the cost of electricity (cents per KWH) for the location(s) outside of New Hampshire? Please also tell us where the non-New Hampshire location(s) is based

What is the corporate income tax rate for the location(s) outside of New Hampshire? Please also tell us the non-New Hampshire location(s).

What is the average health care cost per employee for the location(s) outside of New Hampshire? Please also tell us where the non-New Hampshire location(s) is based.

How do your environmental compliance costs at the non-New Hampshire locations(s) compare to New Hampshire's? Please choose one of the following:

How do your labor-regulatory compliance costs at the non-New Hampshire locations(s) compare to New Hampshire's? Please choose one of the following:

## **In Your Own Words**

1. What are one or two of the most attractive features of NH's business climate, and why? Your chance to tell us about the NH business climate in your own words.
2. What are one or two of the least attractive features of NH's business climate, and why? Your chance to tell us about the NH business climate in your own words.
3. On those occasions when your company is considering expanding or growing operation, which other states or countries do you consider (compared to New Hampshire), and why? Your chance to tell us about the NH business climate in your own words.
4. Other comments or suggestions for improving the Advanced Manufacturing High Technology climate in NH? Your chance to tell us about the NH business climate in your own words.

## **Appendix III: Online Survey Comments**

September 2010

### **2010 New Hampshire Advanced Manufacturing/High Technology (SMHT) Survey**

#### **1. What are one or two of the most attractive features of NH's business climate, and why?**

- Generally good labor pool, although there seems to be shrinking supply of talented, motivated technically skilled folks. Work ethic is generally good and stable.
- Generally small government is also a benefit. You can deal with people there effectively because there are not large bureaucracies."
- Low taxes
- Access to receptive Executive Branch and Legislative Branch.
- Support for companies producing energy efficient products.
- Keeping Government small
- Good work ethic and honesty
- We need to leverage how beautiful this state is and how many things there are to do outside of work. We also need to leverage the many universities that we have as talent pipelines.
- No state sales or income tax - makes finding good employees easier.
- Quality of life issues - why? to attract and retain highly educated employees.
- Tort environment - why? good in a society that is becoming more and more litigious."
- 1)close proximity to technology companies and colleges/universities  
2) ability to recruit talent technical people  
3) reasonable cost of living for housing, etc.
- The work ethic and values of its population.
- No income or sales tax
- No state income tax for employees
- business friendly environment which is disappearing with the recent legislatures
- Established facilities
- 1. exceptional work ethic, ingenuity, creativity of residents  
2. employees are attracted to or stay in area due to NH's rural way of life - nature, schools, low crime"
- 1.Tax Climate  
2. Still somewhat Business Friendly  
3. Good work ethic for the most part  
4. Small State---access to Government agencies
- 1)location/proximity to good to excellent technical colleges and universities  
2) Ability to recruit to a desirable life style with reasonable cost of living

**2. What are one or two of the least attractive features of NH's business climate, and why?**

- Concern over taxation in NH is biggest issue. It seems that NH legislature continually turns to NH businesses as the source for revenue to balance budgets as they avoid addressing the "no-income" tax/school funding issue
- judicial interference in school funding
- Governor's term should be for four years for consistency of management
- State politicians wanting to raise taxes, estate tax potential increases, high cost of education, with poor results.
- NH has a bad reputation of not being Industry friendly and of not having a solid talent pipeline. The perception is that all of the talented employees live in Mass and come here to work.
- Highest business profit taxes in country
- Energy costs are very high - and RGGI/cap & trade make the future rates very uncertain.
- The availability of well-educated and stable (low-turnover) workforce, and the situation with the state's finances are two that come to mind. Why? Answer on well-educated workforce is obvious, but state finances is a big worry - not solving it likely to have negative impact on business climate and it is a big problem with no easy answers. We believe this is likely to be a real obstacle to any Smart Manufacturing high technology companies considering a move or expand here.
- operating costs for manufacturing support; energy, regulatory, benefits for health care
- Uncertainty of tax structure as the state deals with budget deficit.
- massive white collar crime
- BET
- High energy costs
- Competitiveness
- Labor availability"
- 1 - NH doesn't have a consumption Tax like every other state which makes residents pay higher taxes in Property & fees.
- 2. NH lawmakers raid programs - lottery, medical malpractice, cap/trade program which sets a less than acceptable example"
- 1. Losing the Friendly to Business atmosphere
- 2. Heading towards an entitlement society
- High costs for operations; energy, health care, housing (in Southern areas)

**3. On those occasions when your company is considering expanding or growing operation, which other states or countries do you consider (compared to New Hampshire), and why?**

- We are committed to NH; too many of us live here to move to another location unless our competitive ability degrades. Then likely re-locations would be Texas or Florida where we would be integrated into other divisions.
- None
- North Carolina - highly qualified talent
- India - market opportunities, lower costs, less interference by politicians assuming they can spend money wisely. (They cannot)
- From a purely manufacturing standpoint, NC seems to be the hotbed right now. Other states that are well thought of are Ohio and Virginia. From a Technology standpoint, as

in “I have a developing technology and need talented people to help build the business,” Colorado, California and Wisconsin are the areas that are considered.

- southeastern US (NC, SC)- lower electric rates & business taxes, cheap land and buildings
- Florida, Georgia, California, Illinois. Main reasons are usually associated with logistics/supply chain issues, or trying to be in closer proximity to customers/markets. Usually not about costs or taxes.
- Our customers manufacturing support needs to be mainly in Asia or E. Europe; we consider NH for design, development and introduction of products not volume sustaining manufacturing
- We look to manufacture in lower coast areas within the US
- Puerto Rico
- Carolinas
- We're expanding in Asia as that's where the market has gone
- 1. Houston--Friendly to business, pretty good on taxes
- 2. Availability of labor that knows my business
- China, S. Asia mainly; Mexico as a 3rd alternative

#### **4. Other comments or suggestions for improving the Smart Manufacturing High Technology climate in NH?**

- In the global economy, NH cannot compete on labor costs, they are simply too high compared to the rest of the world. This will not change. Therefore we need to compete on innovation and continual productivity improvement while we simultaneously work hard to control growth of the other major costs which impact our competitiveness; primarily health care, taxes and energy. Therefore I recommend the following:
  1. Working on workforce skill base development in engineering, machinists, and lean processes.
  2. maintaining a tax environment conducive to investment and new technology development,
  3. Maintaining a regulatory environment that isn't overly burdensome with an appropriate balance between helping companies comply and enforcement.
  4. Achieving tort reform so that we can control runaway medical malpractice insurance costs which in turn impact health care costs.
  5. Creating an environment where medical providers are compensated for good outcome management vs. activity in order to reduce overall growth rate in insurance premiums.
- Get rid of the Democratically controlled government which threatens higher taxes and higher government spending.
- Support the Manufacturing companies in NH - They produce the jobs
- Government get out of the way
- I think that NH gets lumped in with Vermont too much. It is not seen as industry friendly or cooperative. If it is seriously considered, it is usually only considered as a corp HQ with manufacturing elsewhere. See Tyco and Fisher Scientific. We need to get the state on the map as a destination. I think that a group that focuses on identifying large corporations who are looking to centralize multiple facilities into one, and pursues them proactively to get them to move to NH is necessary over the short term. Once the foundation is set, I think that it will be far easier to attract additional businesses. The

state should also consider funding grants for University start ups that will stay in NH after graduation. The entrepreneurial spirit seems to be high in NH, but they seem to leave quickly, for MA or CA once they get legs.

- NH. Has gotten very crappy over the past 5 years or so. Fees, taxes, energy, taxes, and NH government spending - up, up, up! This is not the NH way.
- You should consider doing some research into how and why Boeing chose South Carolina for their new east coast operations, and perhaps closer to home, why Cisco chose Massachusetts for their recent data center investment. Perhaps there are some interesting lessons in these recent decisions to locate Smart Manufacturing high technology operations that NH could benefit from as part of this study.
- Strengthen the technology support and investments in trade schools, colleges and universities
- You're never going to attract new businesses with a high tax rate - for example: Michigan of 4.95% vs. NH 8.5%. On top of this other states offer local tax relief as well.
- Maybe resurrecting the Industrial revenue Bonds - bond program for start up and /or expanding businesses. This business took advantage of this program in the '70s."
- Strengthen the links and funding between businesses and technology thru the public and private assets of our colleges and universities.

### **What is the average hourly wage, or labor cost, for the location(s) outside of New Hampshire?**

- Houston-Texas and California
- I would say the average labor rates for our employees in Texas are 10-15% higher in our industry due to the demand within the Oil & Gas industry for their particular skill levels.
- California rates are significantly higher than NH comp rate, 15-20% higher due to cost of living in CA.
- Our other locations are Charleston, SC; Fareham, UK; Goa, India; Targumures, Romania; and Taipei, Taiwan
- We have commercial operations locations (sales and service offices) in over 50 countries. We have manufacturing, research and engineering, and/or assembly operations in 10 countries. Generally speaking, average labor cost is lowest in China, highest in Western Europe, and USA is in the middle. We only have one significant USA manufacturing operation - the one in NH.
- Our labor costs in other countries - \$3.00 in South China; \$5.00 in Eastern Europe; \$4.50 in Mexico
- Our labor cost is \$12 per hour in Pennsylvania
- Up state NY - same as NH
- Our labor costs are lower everywhere
- New Hampshire average salary (incl. Fringe) = \$153K/yr.
- Metro DC / California = +25%; New York/New Jersey = +20%; Texas = -10%; Massachusetts = 0%
- Yes - all facilities (Carolinas and China) have significantly increased competitiveness
- We only have 7 personnel in other states which would make this data meaningless.

- We have 7 other plants throughout the world but that data would also probably not be valid w/o caveats, etc.
- China and Eastern Europe; \$200/month China; \$400/month E. Europe

### **What is the cost of electricity (cents per KWH) for the location(s) outside of New Hampshire?**

- Texas is significantly less, but we have a minimal facility in Texas so this is not a factor.
- Some examples: China = \$0.04; UK = \$0.15; France = \$0.15
- ranges from \$.12 to \$.15 per KWH in our other locations
- costs are too low to even track
- \$.10185/KWH - PA
- 6 cents in NY versus 14 cents in NH
- 5 to 6 cents per KWH
- Cost of electricity (cents per KWH) in other locations - CA = 19.1; NH = 11.9; TX = 11.6; NY = 12.1; NJ = 16.7; MA = 12.2
- We pay about 5 cents in our other facility
- Indiana - 11.4c/kw
- ~\$.15/kwh

### **What is the corporate income tax rate for the location(s) outside of New Hampshire?**

- Much better in Texas than NH or CA
- Some examples of corporate tax rates outside of NH: China = 25%; France = 33%; UK = 22%
- China is 10% to 25% location dependent
- we found that Massachusetts rates were not so bad, but no longer there
- Michigan - 4.95% and Indiana - 8.5 %
- Corporate tax rates are 10 to 25% in other locations

### **What is the average health care cost per employee for the location(s) outside of New Hampshire?**

- Highest in CA and lower in Texas, although employees participate in a National program.
- This gets complicated due to various country schemes and where there are national insurance schemes. Generally speaking, USA is highest at around \$10K. Most others range between half that and three-quarters that, but again, this is because of the different ways that health care is taxed and funded and so on in various countries. You have to consider this health care cost as one component within the total cost per employee when all things are considered.
- Roughly \$.50 per hour equivalent impact
- We do not provide health care
- \$8,600 - PA
- NH plan for all employees
- New Hampshire is similar to other locations
- included in wage above; equates to ~\$30/month

**Other Competitive Pressures on Your Business**

- One of the most difficult pressures on our business is the competition that exists from Canadians. NAFTA has resulted in government-subsidized companies coming to the US to compete with us. However, between the exchange rate and the unwillingness of Canadian companies to take US prices, we are able to go into Canada to compete up there. NAFTA is a one way street in our industry - and it's the wrong way US companies.
- Most significant issue is availability of appropriately skilled and motivated technical talent from machinists to engineers to manufacturing specialists (Lean-educated) in order to support our efforts to continuously improve our productivity.
- Foreign competitors low wages, low regulations and low tax burdens
- Availability of Qualified Experienced Professionals (engineers)
- Overseas comp. China/ Asian Countries
- Federal taxes and regulation waste a lot of time. Estate taxes now cost me \$300,000 a year in legal costs and life insurance.
- Internal to my business which is a global manufacturer, I constantly battle the perception that NH is not a manufacturing state. There are states that are seen as far more cost effective, NC, OH, Etc. As far as I can tell, there is no real cornerstone Manufacturing industry or company in NH. It would be helpful if the State could be very aggressive about getting a large manufacturing location, whether it is one or multiple companies.
- This may seem strange to you, but for us, it is more about location, logistics infrastructure, access to highly educated employees and low employee turnover, access to markets/customers...and less about direct costs. We tend to factor costs into our local, regional, national pricing models. Generally speaking, Keene/USA is not an expensive place in which to operate when all things are considered.
- Healthcare Costs are by far and large the major issue.
- Large liquor distributors are exerting extreme "pressure" on state employees - in many cases; NH companies are paying the price.
- Availability of raw materials
- Cost of living in NH
- Regulatory - such as - waste disposal - classification, etc... NH is off the beaten path and hence all must be shipped considerable distances. Also NH or NH waste haulers differ at times on classifying materials hazardous while others do not - increases costs. Costs of operating permits (air, etc) are continually going up without any benefits to payers. Electric rates continually increasing. We pay Indiana, Texas state taxes and NH with NH having the highest rate.

## Appendix IV: New Hampshire Manufacturing by Subsector

<b>State of New Hampshire -</b>		<b>Average Annual 2009</b>		
<b>NAICS Code</b>	<b>Industry</b>	<b>Average Firms</b>	<b>Average Annual Employment</b>	<b>Average Weekly Wage</b>
<b>31-33</b>	<b>Manufacturing</b>	<b>2,073</b>	<b>68,054</b>	<b>\$1,120.98</b>
311	Food Manufacturing	109	2,310	\$840.81
312	Beverage and Tobacco Product Manufacturing	16	664	\$1,224.93
313	Textile Mills	27	1,435	\$909.49
314	Textile Product Mills	43	207	\$573.88
315	Apparel Manufacturing	19	463	\$758.01
316	Leather and Allied Product Manufacturing	14	193	\$598.38
321	Wood Product Manufacturing	118	1,809	\$750.21
322	Paper Manufacturing	25	1,426	\$935.17
323	Printing and Related Support Activities	196	2,828	\$818.28
324	Petroleum and Coal Products Manufacturing	19	226	\$1,160.53
325	Chemical Manufacturing	55	1,720	\$1,203.24
326	Plastics and Rubber Products Manufacturing	100	4,679	\$902.03
327	Nonmetallic Mineral Product Manufacturing	100	1,960	\$957.08
331	Primary Metal Manufacturing	40	2,653	\$937.38
332	Fabricated Metal Product Manufacturing	389	10,555	\$964.20
333	Machinery Manufacturing	175	7,731	\$1,206.12
334	Computer and Electronic Product Manufacturing	290	16,115	\$1,554.71
335	Electrical Equipment/Appliances Manufacturing	62	4,074	\$1,076.35
336	Transportation Equipment Manufacturing	38	1,770	\$1,236.65
337	Furniture and Related Product Manufacturing	79	921	\$734.53
339	Miscellaneous Manufacturing	163	4,317	\$907.52
Source: New Hampshire Department of Employment Security; Covered Employment & Wages				