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**Recent Trends in Payroll Employment in
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Introduction

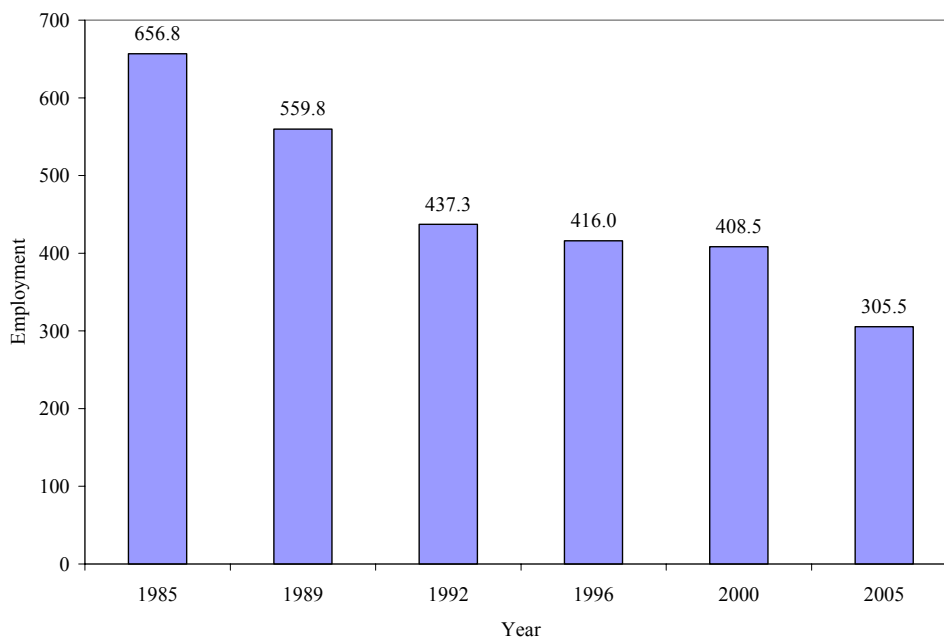
Over the past two decades, the state of Massachusetts has experienced both substantial cyclical swings in the number of nonfarm wage and salary jobs in the state and a substantial shift in the mix of industries that employ wage and salary workers in the state.¹ From 1979 to 1989, the state experienced a major jobs boom that added 505,000 net new wage and salary jobs, a near 20% rate of job growth. Over the 1988-1992 period, however, the state would see its wage and salary job base substantially diminished with a 10% decline in payroll employment. It would take nearly six years of steady job growth from 1992 to 1998 to restore the previous job level peak that prevailed in 1988.

A number of important structural shifts in the industrial composition of employment in the state also took place over the past 20 plus years. In particular, since the mid-to-late 1980s, Massachusetts has lost over one-half of its manufacturing jobs. In 1983, the state had 629,000 manufacturing jobs. By 2005, this number had dwindled to 305,500. The manufacturing sector produces a number of important labor market and economic benefits for the state's economy. During the 1970's and 1980's, the manufacturing sector created a broad base of mid-to-high wage jobs that helped many of the state's blue collar workers, without post-secondary schooling, earn middle class incomes and own homes. Manufacturing jobs paying mid-level wages were available to residents with only a high school education or one to two years of postsecondary schooling. In addition to the important labor market benefits of having a large manufacturing job base, there are also substantial economic output and multiplier benefits. As a main component of the export base of the Massachusetts economy, manufacturing industries helped generate large, favorable multiplier effects that produced benefits for suppliers and for local industries supplying residents with goods and services. Thus, the large decline in manufacturing jobs over the past two decades has created unfavorable labor market conditions in the state for male workers without a college degree, and produced negative multiplier effects that compounded the problem of job loss in that sector. Given the broad decline in manufacturing activities in the state, Massachusetts has become increasingly dependent on other industries including finance,

¹ For an overview of job developments in Massachusetts during the decade of the 1980's and 1990's, see: Andrew Sum, Paul Harrington, et.al., The State of the American Dream in Massachusetts, 2002, Report Prepared for The Massachusetts Institute For a New Commonwealth, May 2002.

services, and trade, and on a few growing subsectors of manufacturing to create jobs for the state's residents.

Chart 1:
Trends in Wage and Salary Employment in Manufacturing
Industries of Massachusetts, 1985-2005
(Annual Averages in 1,000s)



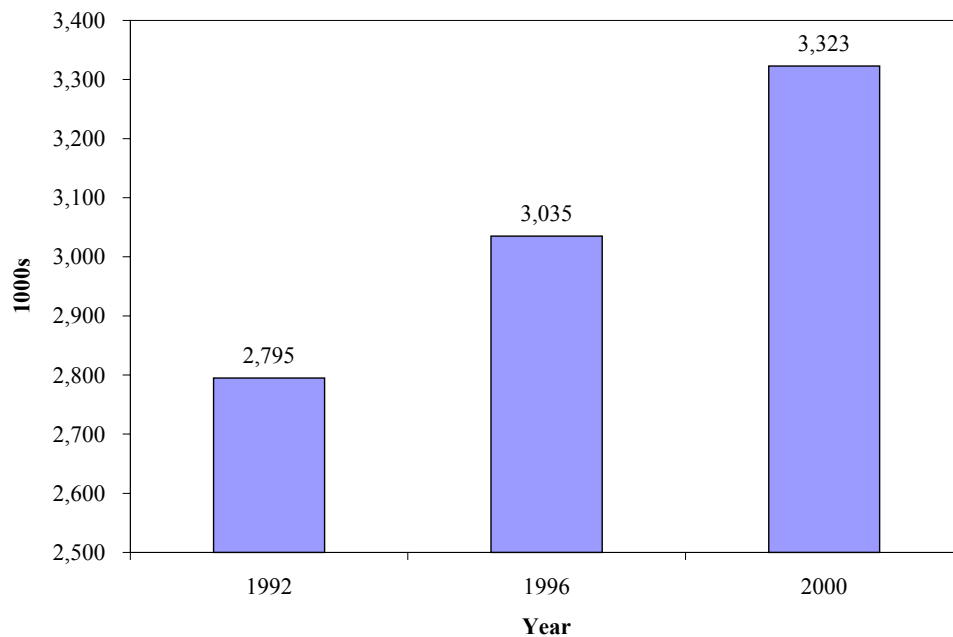
In particular, the pharmaceutical, life sciences, health, and biotechnology industries have become very important to the overall health of the Massachusetts economy. A recent article in Commonwealth magazine, describes the booming biotechnology and life sciences industries as forming the “White Coat” of the Massachusetts economy.² A number of Massachusetts political leaders at the state and city level have recognized these industries for their recent growth and view them as core elements of future growth industries of the state's economy. Given the growth in the number of jobs and output in these industries in Massachusetts over the past ten years, we will briefly describe employment trends in these fields over the past five years and place them in the context of overall job trends in the state.

² Rosabeth Moss Kanter, “The White Coat Economy of Massachusetts,” The Boston Globe, May 9, 2006.

Job Developments in Massachusetts During the Economic Boom Years, 1992 to 2000

The steep job losses in Massachusetts that took place during the severe state and regional recession of the late 1980s and early 1990s finally came to an end in 1992. Over the next eight years, the state would experience steady and strong job growth, with total payroll employment increasing from 2.795 million in 1992 to 3.035 million by 1996 and to 3.323 million in 2000 (Chart 2). A total of 528,000 net new wage and salary jobs were created in Massachusetts over this eight year period, representing an increase of 19%, only slightly below the national average job growth rate of 21% over the same time period. Our state captured about 2.3% of all net new payroll jobs in the nation between 1992 and 2000. Unfortunately, the jobs boom in the state and the nation would come to an abrupt end in the first quarter of 2001. and a jobs recession would set in over the next three years.

Chart 2:
Trends in Non-Farm Wage and Salary Employment in Massachusetts, 1992-2000
(Annual Averages in 1000s)



Payroll Employment Developments in Massachusetts and the U.S. from January-March 2001 to the Fall of 2006

After eight consecutive years of strong payroll job growth, nonfarm wage and salary employment in Massachusetts came to an immediate end in early 2001 as the national recession set in. The National Bureau of Economic Research has identified March 2001 as the beginning month of the recession of 2001 while November 2001 was the ending month. In the first quarter of that year, nonfarm wage and salary employment (seasonally adjusted) in Massachusetts peaked at just under 3.370 million (Table 1). Over the next three years, payroll employment in Massachusetts would decline fairly steadily and substantially, not bottoming out until the first two months of 2004 when non-farm wage and salary employment (seasonally adjusted) was estimated to be only 3.172 million, or nearly 200,000 below its peak level in the first quarter of calendar year 2001. Job losses in our state were quite widespread across most industries and geographic areas of the state although manufacturing industries and firms in the Greater Boston area experienced above average losses in formal payroll employment.

Table 1:
Trends in Non-agricultural Wage and Salary Employment in
Massachusetts and the U.S. 2001 I to 2006 August/October
(Numbers in 1000s, Seasonally Adjusted)

	(A)	(B)	(C)	(D)
Time Period / Geographic Area	Beginning of Period	End of Period	Absolute Change	Per Cent Change
2001 I – 2006 September/November				
• Massachusetts	3,370	3,224	-146	-4.3%
• U.S.	132,509	135,904	3,395	+2.6%
2001 I – 2003 August/October				
• Massachusetts	3,370	3,178	-192	-5.7%
• U.S.	132,509	129,929	-2,580	-1.9%
2003 August/October to 2006 September/November				
• Massachusetts	3,178	3,224	+46	+1.5%
• U.S.	129,929	135,904	5,975	+4.6%

Payroll employment in Massachusetts experienced renewed growth beginning in the early spring of 2004 and has picked up more steam over the past year. Still, in the September-

November period of 2006, the ending period of our jobs analysis, payroll employment stood at only 3.224 million, or 146,000 jobs below its cyclical peak of 3.370 million in 2001 I. Unfortunately, our state ranked third lowest among the 50 states in its job creation over the past five years. Only Louisiana and Michigan fared worse in job losses than we did over this five and one-half year period.

The job creation performance of the Massachusetts economy over the past six years has been far poorer than that of the nation. The total number of non-farm wage and salary jobs in the U.S. also peaked in the first quarter of 2001 and fell sharply over the following two and one half years. A steady jobs recovery in the country did not begin until the late summer of 2003 even though real output nationally began to grow in the fourth quarter of 2001. Between the first quarter of calendar year 2001 and the August-October period of 2003, non-farm employment in the U.S. fell by 2.580 million or 1.9%. In contrast, non-farm employment in our state declined by 192,000 or 5.7% over the same time period, a rate of job loss three times as high as that of the nation.

Since the late summer and early fall of 2003, wage and salary employment in the U.S. has grown steadily and fairly strongly, with the national economy adding nearly 6 million net new jobs over this period, a growth rate of 4.6%. Over the same time period, private firms and government agencies in the Massachusetts economy added only 46,000 net new jobs, a growth rate of only 1.5%, only one-third as high as that of the nation over the same three year period. By the fall of 2006, the total number of payroll jobs in the U.S. had increased by 3.4 million over its previous peak level in the first quarter of 2001. In contrast, non-farm payroll employment in Massachusetts was still 146,000 below its peak level in the fourth quarter of 2001.

Trends in Manufacturing Employment in the U.S. and Massachusetts From 2000 to 2005

While the U.S. economy began to generate gains in payroll employment in the late summer and early fall of 2003, the distribution of job gains has been very uneven across industrial sectors. Manufacturing employment nationwide was hard hit by a combination of technological developments that reduced the demand for workers and a steep deterioration in the balance of trade in manufactured products. Over the past five years, the United States has lost a substantial share of its manufacturing jobs, particularly among production workers. In 2000,

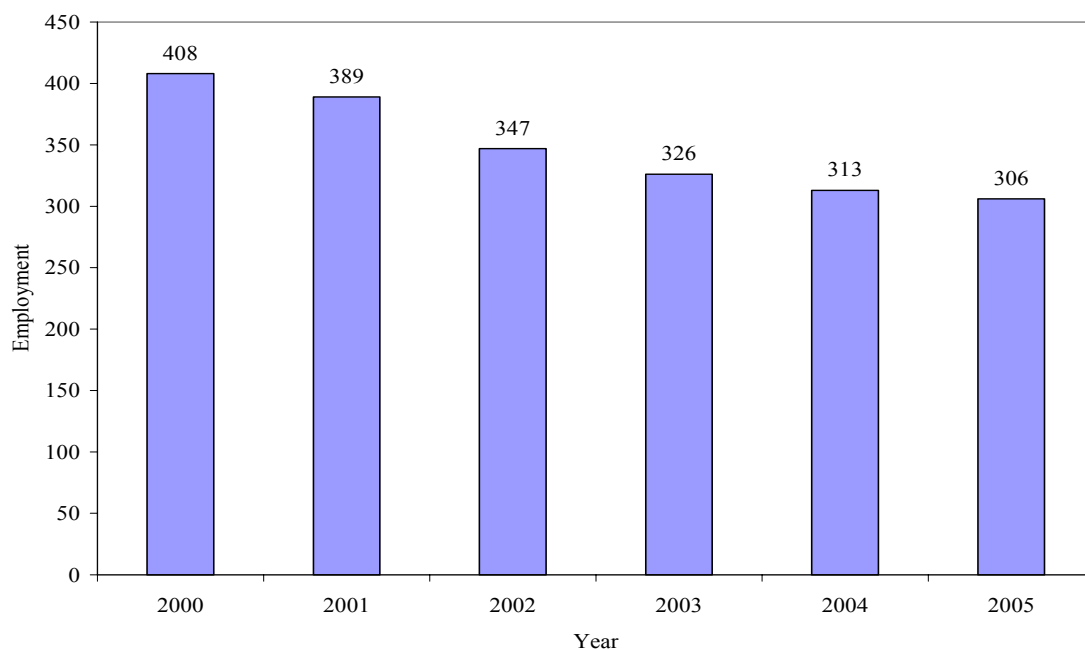
there were 17.265 million wage and salary workers employed in the nation's manufacturing industry (Table 2). By 2005, the number of wage and salary workers employed in this industry had declined by 3.032 million, representing an 18% drop in jobs in the manufacturing sector (Table 2). In Massachusetts, manufacturing industries shed jobs at an even faster rate than the nation over this same time period. In 2005, the state only had 306,000 jobs in the manufacturing industry, representing a 25% decline from the 408,000 manufacturing jobs that were present in the state during 2000. Manufacturing employment fell steadily in the state generating a substantial negative multiplier over the past five years (Chart 3).

Table 2:
Change in Manufacturing Employment in the U.S. and Massachusetts, 2000-2005
(Annual Averages, in thousands)

	(A) 2000	(B) 2005	(C) Absolute Change	(D) Percent Change
Massachusetts	408	306	-102	-25.0%
U.S	17,266	14,234	-3,032	-17.6%

Source: Bureau of Labor Statistics, Current Employment Statistics (CES)

Chart 3:
Trends in Manufacturing Employment in Massachusetts, 2000-2005
(Annual Averages, in thousands)

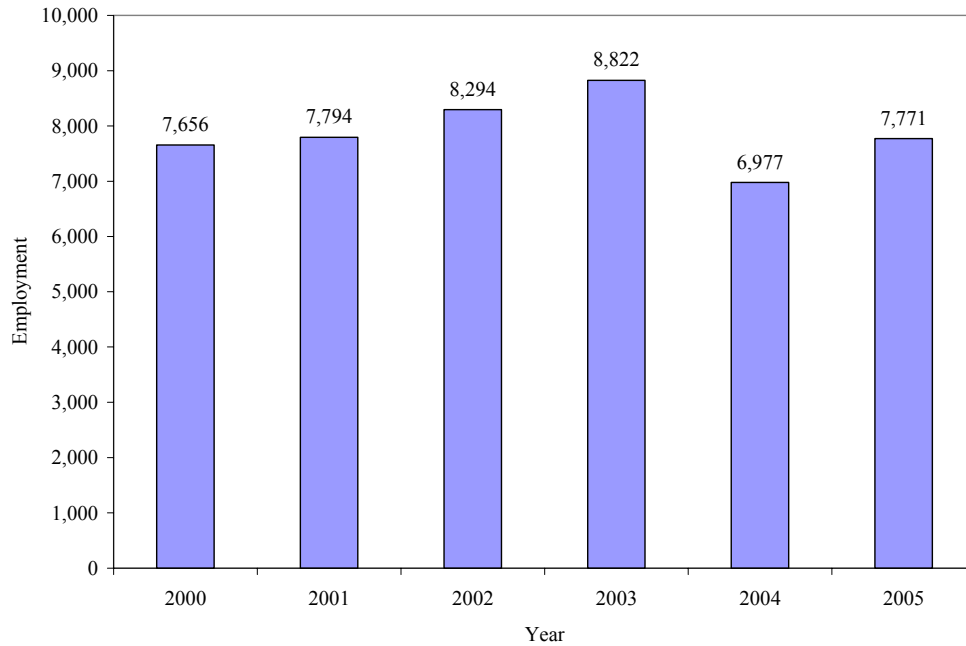


In addition to job losses in the manufacturing sector in Massachusetts between 2000 and 2005, there were job declines in several other key industrial sectors of the state's economy. Massachusetts lost jobs in the trade, transportation, and utilities industries, the information services industries, financial services industries, professional and business services industries, and in federal, state, and local government. With the exception of education and health services and some sub-sectors of the construction industry, Massachusetts experienced a broad base decline of jobs from 2000-2005. The biopharmaceutical industries were part of a select group of industries that added jobs in the state over this five year period.

Employment Trends in Biopharmaceutical Industries 2000-2005

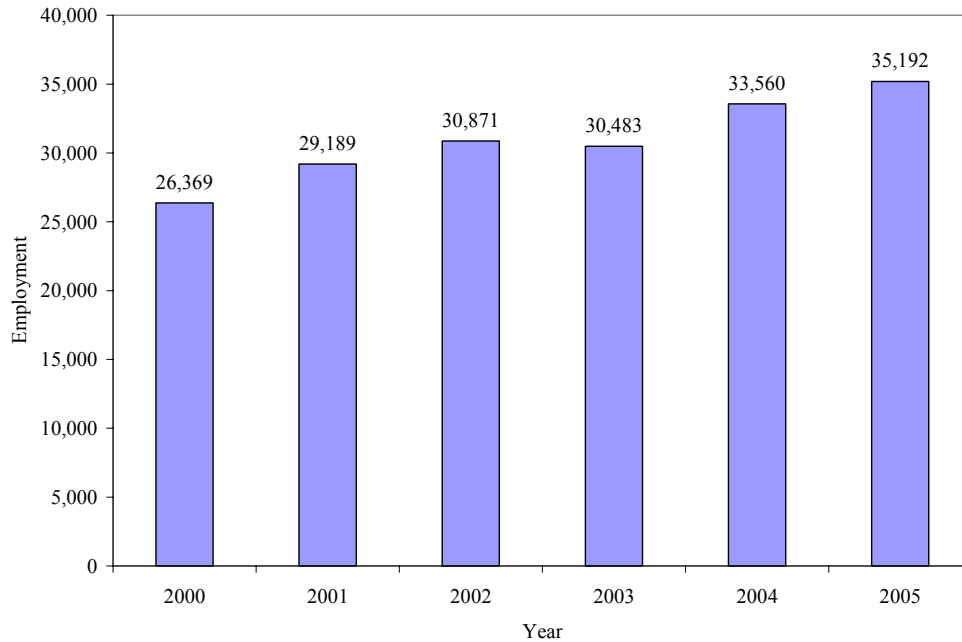
To examine job trends in biopharmaceutical industries in Massachusetts, we analyzed payroll job data from the Quarterly Wage and Employment Survey for three North American Industry Classification System (NAICS) industries. They are NAICS codes: 3254, 3391 and 54171. Employment trends were analyzed for each industry separately and for the three industries combined. Chart 4 displays annual average employment levels for the Pharmaceutical Preparation Manufacturing industry over the past five years. Employment in the pharmaceutical preparation manufacturing industry in Massachusetts grew steadily from 2000 to 2003 while many other industries in the state were shrinking. This sector added 1,166 jobs between 2000 and 2003, representing a 15.2% increase in employment from 2000. The pharmaceutical preparation manufacturing industry, however, shed 1,845 jobs between 2003 and 2004, before recovering some of these job losses between 2004 and 2005. Over the five year period from 2000 to 2005, there was an overall increase of 115 jobs in pharmaceutical preparation manufacturing. It was one of the few manufacturing industries to add jobs over this time period.

Chart 4:
Trends in Pharmaceutical and Medicine Manufacturing
Employment in Massachusetts, 2000-2005
(Annual Averages)



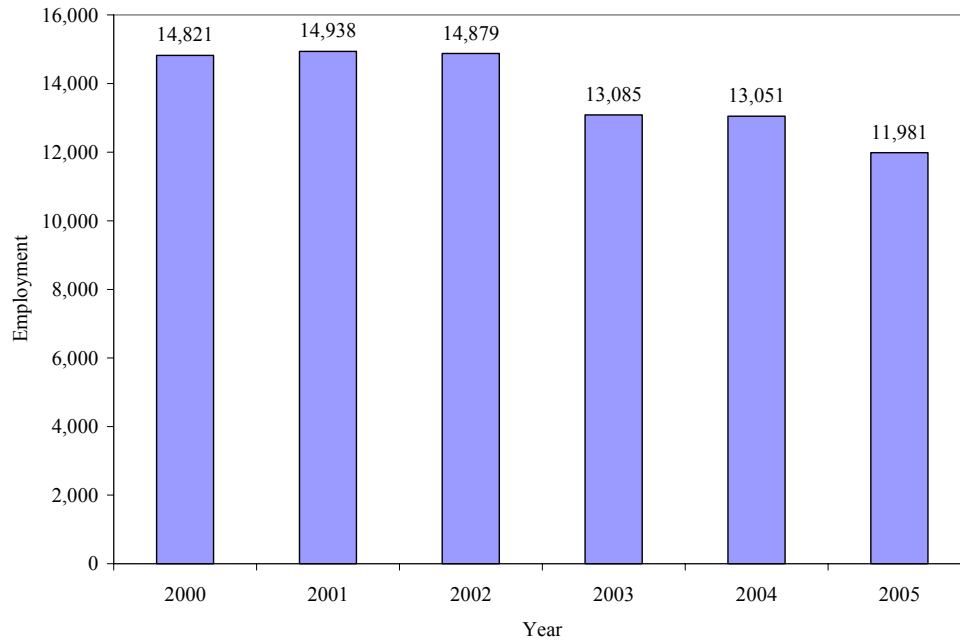
Employment in the Physical, Engineering, and Biological Research industry in our state has been one of the star performers in job creation over the past five years. Payroll employment in this sector increased by 8,823 or 33% between 2000 and 2005 (Chart 5). The strong growth in jobs in this key sector enabled total employment in all biopharmaceutical industries to rise over the 2000-2005 period.

Chart 5:
Trends in Physical, Engineering, and Biological Research
Employment in Massachusetts, 2000-2005
(Annual Averages)



Employment in the medical equipment and supplies manufacturing industries (NAICS code 3391) did not fare as well as well over the past 5 years. Overall wage and salary employment in this sector declined from 14,821 in 2000 to 11,981 in 2005, a loss of more 2,800 jobs or 19%. This rate of job loss was still below the 25% decline in overall manufacturing employment in the state between 2000 and 2005.

Chart 6:
Trends in Surgical and Medical Instrument Employment in Massachusetts, 2000-2005
(Annual Averages)



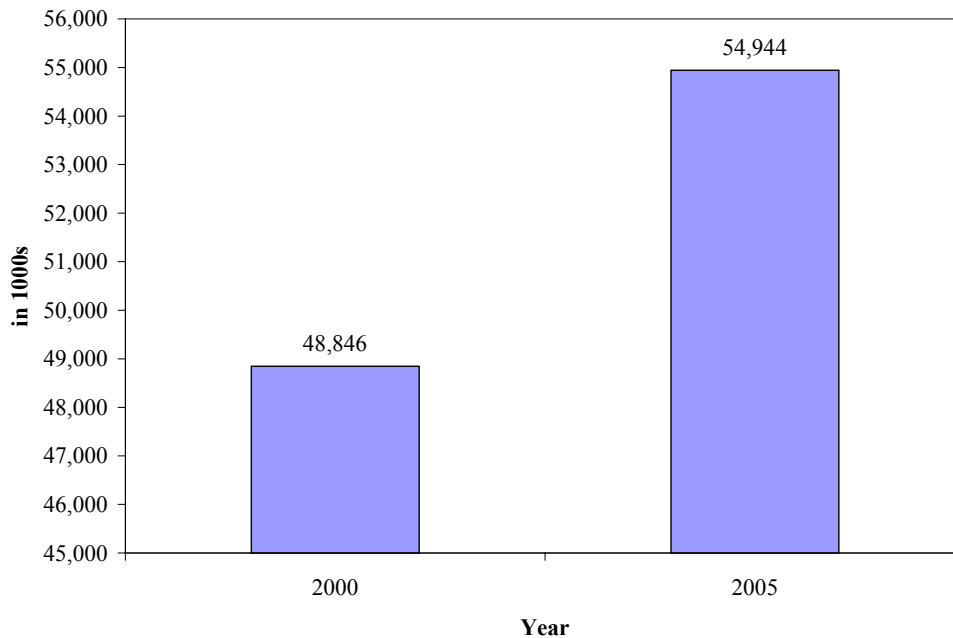
In 2005, there were nearly 55,000 persons holding wage and salary jobs in the biopharmaceutical industries of Massachusetts. The number of employed in these industries during 2005 surpassed the previous employment peak that occurred in 2002 when there were 54,044 jobs in these industries. Between 2000 and 2005, over 6,000 jobs were added in these industries, representing a 12.5% growth rate over this five year period.

Table 3:
Trends in Employment in the Biopharmaceutical Industries in Massachusetts, 2000-2005

Year	Biopharmaceutical Industries (NAICS 3254, 3391, and 54171)
2000	48,846
2001	51,921
2002	54,044
2003	52,390
2004	53,588
2005	54,944
Change, 2000-2005	+6,098
Percent Change	12.4%

Source: ES202 Employment Series, U.S. Bureau of Labor Statistics, tabulations by CLMS

Chart 7:
Employment Biopharmaceutical Industries in Massachusetts, 2000-2005



As was revealed in our analysis of employment trends for each industry separately, the growth in biopharmaceutical employment has not been spread evenly over these three industries. Over the past five years, in fact, Massachusetts lost jobs in the surgical and medical instrument industry sector between 2004 and 2005. The net employment growth of the biopharmaceutical industries over the 2000-2005 period stands in sharp contrast to the negative employment growth

in the private sector (-3.5%) and the 25% decline in manufacturing employment over the same five year period.

Table 4:
Change in Employment in Biopharmaceutical Industries, 2000-2005

	(A)	(B)	(C)	(D)
	2000	2005	Absolute Change	Percent Change
Pharmaceutical Preparation Manufacturing (3254)	7,656	7,771	+115	+1.5%
Surgical and Medical Instrument Manufacturing (3391)	14,821	11,981	-2,840	-19.1%
Physical, Engineering, and Biological Research (54171)	26,369	35,192	+8,823	33.4%
Total, Above 3 Industries (3254, 3391, and 54171)	48,846	54,944	+6,098	12.4%
All Manufacturing Industries	408,532	305,518	-103,014	-25.2%
Total, All Private Sectors	2,858,008	2,757,402	-100,606	-3.5%

Source: ES202 Employment Series, U.S. Bureau of Labor Statistics, tabulations by CLMS