

MASSACHUSETTS EXPORTS 2002

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Massachusetts Exports 2002

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I. EXECUTIVE SUMMARY

Still flagging economies in Europe and Japan, a telecom industry still waiting for recovery, and continuing contraction of overseas markets for Massachusetts-made automatic data processing machines and other business machines led to the Commonwealth's second year in a row of export losses. Massachusetts was not alone, however, in facing sagging export fortunes. Indeed, Massachusetts exports in 2002 fell at a lower rate than other New England states, the Northeast states, and the US overall. Over the past five years, Massachusetts exports have grown at a stronger pace than any of these other state groupings. Last year also had its export growth stars. Pharmaceuticals and organic chemicals, in particular, enjoyed rapid export advances, continuing an export mix shift with a stronger emphasis on biotech and medical related products.

The highlights of this year's report are presented below in the form of a SWOT analysis. The report presents data from 2002 and for a longer term perspective from 1998-2002 as well. This year's report also includes several new features. A section on export manufacturing indicators relates exporting in Massachusetts, New England, the Northeast, and the US to jobs, growth in export establishments, GSP, manufacturing productivity, and per capita export growth. In another new section, United Nations data compare Massachusetts' export performance by product and market destination to non-US competitors. Finally, a detailed presentation of exports to Canada presents a close-up snapshot of our largest export market. All of the report tables cover only product exports and do not consider the state's expanding service sector exports.

Strengths

- Pharmaceuticals were the state's top export growth sector in 2002. State export advances were far ahead of national averages and reversed the situation last year when the Massachusetts pharmaceutical industry enjoyed robust growth but still lagged behind US competitors in other states. The UK and the Netherlands were the leading markets for Massachusetts pharmaceuticals in 2002.
- Organic chemicals continued to rise in 2002 as an industry of importance for Massachusetts, advancing from 8th to 6th position in the state's top export rankings. The strength of the sector is almost entirely due to the export of one commodity – hormones and derivatives – and most of the shipments in this category went to either France (71%) or Germany (18%).
- Plastics also continued to exhibit solid, steady growth over a relatively diverse base of products. Top markets for plastic products from the Commonwealth are Canada and Mexico with rapid advances in Taiwan as well.
- After a difficult year in 2001, arms and ammunition came charging back in 2002, rising from 32nd place in the state's export ranking's in 2001 to 11th place in 2002. Most of the growth came from shipments to Greece and Japan.
- Within the beleaguered electric machinery sector in 2002, there were still export success stories. At the 4-digit commodity level, electronic integrated circuits and microassemblies led all other commodities at that level in export growth. Much of the increase in shipments went to Malaysia, pushing that relatively small market into the state's top 10 export destinations. The net five-year increase in electric machinery exports was the highest of any industry.
- UN data show that while Massachusetts export gains of 10.2% from 1998-2001 lagged behind World gains of 14.3%, the state exceeded World growth in 8 of its top 10 export industries. Over the same period, Massachusetts surpassed World increases in Latin America, all of Europe, parts of Asia excluding Japan and China, and the African Continent.

Weaknesses

- Industrial machinery, including computers, cemented its lock as the state's top export loss sector for 1998-2002 by falling another 19.6% in 2002. Automatic data processing machines *and* parts of computers and other office machines were the source of most of these losses.
- Far behind industrial machinery in the scale of losses, printed books and newspapers lost 23.8% of its export market in 2002. Since 1998, exports have fallen off 42.2% and the sector now stands as the state's second largest export loss category for 1998-2002.
- Electric apparatus for line telephony accounted for much of the sector losses within electric machinery, reflecting the ongoing equipment glut in the telecommunications industry. Exports were down again this year to major markets in Asia and Europe as well as Canada.
- Canada continued to slump as an export market for Massachusetts products. Not only are export shipments falling, they are falling while competing exports from non-US companies to Canada are on the rise. While Massachusetts exports to Canada declined by 18.0% in 1998-2002, shipments from non-US companies to Canada increased by 29.7%.
- Japan, the state's second largest export market, is also a market in trouble. Shipments to Japan fell 18.6% in 2002 compared to a decrease for the US overall of 10.8%. In 1998-2002, Massachusetts exports to Japan dropped a net 13.8% compared to a corresponding decrease of 11.1% for the US.
- While Massachusetts export growth exceeded U.S. growth from 1998-2002, the most recent UN data show that World export growth of 14.3% exceeded Massachusetts growth of 10.2% from 1998-2001. The state's top three export losses by commodity, in computers, computer parts, and turbojets/turbopropellers/gas turbines, have been areas of strong growth for international competitors. By export destination, World growth outpaced state growth in North America, the Caribbean, the Asian Continent as a whole, sub-Saharan Africa, and in Australia.

Opportunities

- The US dollar has fallen about 6.5% this year against a basket of currencies from its largest trading partners. A lower dollar makes US companies more competitive in foreign markets. At the same time, global growth is expected to increase to 4.1% in 2004 from 3.2% in 2003 increasing international buying power for US- made products.
- After two years of declines, international IT spending is expected to rebound by approximately 5%, according to economic analysts. Semiconductor trade groups also have predicted a sharp rise in global sales for that industry for the latter half of 2003 and 2004. Both predictions, if accurate, will mean good news to Massachusetts high tech exporters.
- The US and Singapore have recently signed a free trade agreement. With enactment of the treaty, most bilateral duties on manufactured goods will go immediately to zero. Singapore is an important market for Massachusetts, advancing from 10th place in 2001 to 9th place in 2002 in the state's export rankings. The new trade agreement should present increased opportunities for state exporters. Instrumentation and electric machinery are currently the top export sectors to Singapore.
- The US has also recently concluded a free trade agreement with Chile. Expanded market opportunities there could help improve the state's export performance in South America.
- Table 2.3 (Massachusetts Top 100 Export Commodities: Top 10 Potential Markets of Opportunity) shows US growth markets where Massachusetts export growth or market penetration is low relative to the US. For each of Massachusetts' 100 top export

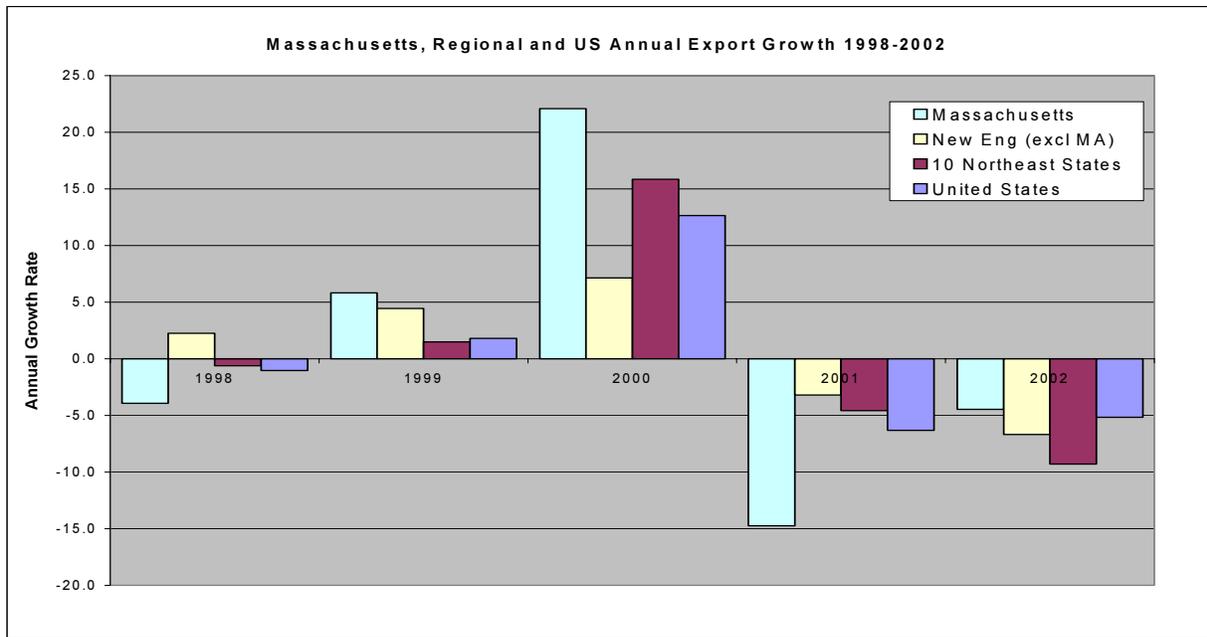
commodities, the table lists 10 potential new markets where there appears to be a market demand that state exporters may be missing out on. This is a useful tool to look for markets of opportunity that can guide the state in planning new international business development strategies. A review of this table shows Mexico as a potential market of opportunity for 57 of the commodities, China for 47, Canada 34, and Korea 31. The table implies that Massachusetts exporters might be well served by looking at opportunities in Asia as well as in our own backyard. In Canada, Massachusetts has a particular advantage to promote its exports by having a former state governor sitting as US ambassador to the country.

- Presidential election politics could deliver benefits for exporters in the coming year as the administration look to address the loss of manufacturing jobs to overseas competitors. The Bush administration is pushing for tougher enforcement of trade pacts, including assaults on dumping and export subsidies. Congress is also considering bills that would replace now illegal tax subsidies (following a WTO ruling) with a package of other tax breaks.
- Large trade surpluses and growing reserves in China may lead to an upward revaluation of the yuan in the coming year. Pressure for such a move is being applied by the US and others of China's leading trade partners. The greater benefit of a revaluation of the yuan may well be the impact it would have on the currencies of other key Asian trading nations. Japan, South Korea, and Taiwan have all been damping the rise of their currencies to maintain a competitive position with China. Once China moves, the others may follow making US products more competitive in all of those markets.

Threats

- Several sources of trade tensions between the US and Europe could end up in sanctions on a broad range of products if compromises are not reached by each side. The US has filed a lawsuit with the WTO against a European ban on genetically altered crops. The European Union has won WTO rulings against the United States for protective steel tariffs and a tax policy which it claims effectively subsidizes American exports. Failure by either side to comply with WTO findings could result in a rising tide of punitive duties or import quotas.
- Failure of China to adjust currency values as requested by the Bush administration may result in new assaults on China's exports to the US, generating countervailing protectionist measures by the Chinese and undermining the new Chinese leadership's ability to accomplish greater trade liberalization.
- Lower than expected or no economic growth in Europe and Japan will deflate international demand for US-made products and slow US export advances.
- The breakdown of the WTO conference in Cancun was a major setback for world trade liberalization that may result in a greater push for bilateral and regional trade agreements. Rise of more regional trading blocs will put those not included in the bloc at a competitive disadvantage. A proliferation of these deals could result in a confusion of overlapping agreements that could clog rather than open up new trade.
- The burgeoning US trade deficit if it continues to grow unabated threatens to have a serious negative impact on US currency values, raise interest rates and slow the US and world economic recoveries.

II. INTRODUCTION



Massachusetts exports declined for the second year in a row although the drop in shipments from the Commonwealth was less than that of our near neighbors in New England¹ and the Northeast², as well as the US overall. Viewed over the past five years, Massachusetts' net gain in exports is significantly above the region and the nation thanks largely to the export boom year of 2000.

Export related manufacturing data³, reported in the chart and table on the following page, show the importance of exports to manufacturing at the state, regional, and US levels. Massachusetts and Northeast manufactured exports, reported in the table on the following page, grew slightly faster over five years than total exports, shown in the table above. In the five other New England states and US-wide, manufactured exports grew slightly slower. Data on total manufacturing shipments, including those for both domestic and foreign sales, lag one year behind data on exports. However, the most recent data show that export shipments increased at much higher rates than total shipments at the state, regional, and national levels from 1998-2001. Further, while export shipments from the Northeast grew faster than at the US level, total manufacturing shipments in the Northeast grew more slowly than at the US level and actually declined in Massachusetts and the rest of New England. In 2001, 20.8% of Massachusetts' manufactured shipments were exported compared to 15.9% in the Northeast and 16.3% in the US. Massachusetts and New England exports as a percent of shipments are also growing at more than twice the national rate.

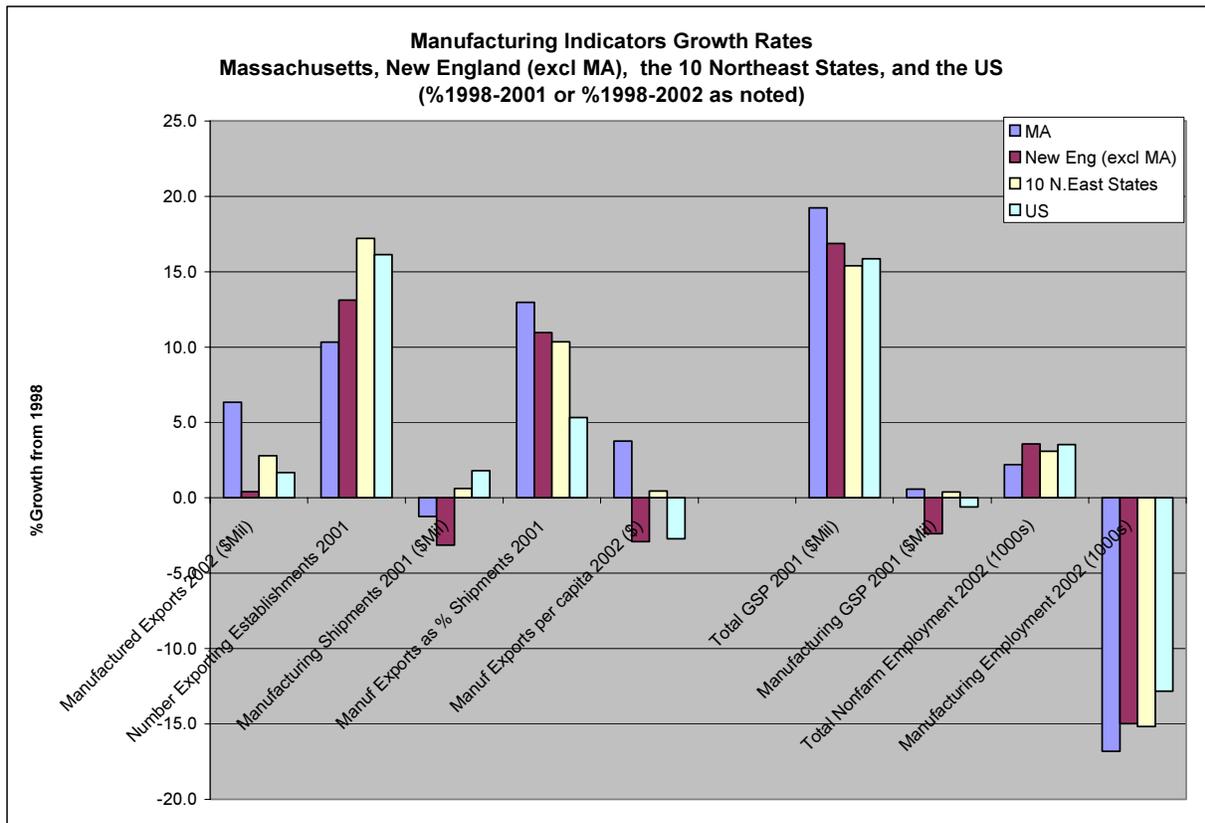
Annual Export Growth Rates	1998	1999	2000	2001	2002	1998-2002
Massachusetts	-3.9	5.8	22.1	-14.7	-4.5	5.22
New England (excl MA)	2.2	4.4	7.2	-3.2	-6.7	1.10
10 Northeast States	-0.6	1.5	15.8	-4.6	-9.3	1.75
United States	-1.0	1.8	12.6	-6.3	-5.2	1.88

Value Exports (\$Billions)	1998	1999	2000	2001	2002
Massachusetts	15.88	16.81	20.51	17.49	16.71
New England (excl MA)	15.62	16.31	17.48	16.92	15.79
10 Northeast States	102.46	104.00	120.47	114.95	104.25
United States	680.47	692.82	780.42	731.03	693.26

¹ New England includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

² The ten Northeast states include Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

³ See appendix for source of manufacturing data.



	Value in 2001 or 2002 as noted				%Increase from 1998			
	MA	New Eng (excl MA)	10 N.East States	US	MA	New Eng (excl MA)	10 N.East States	US
Manufactured Exports 2002 (\$Mil)	15,809	14,510	90,992	614,524	6.3	0.4	2.8	1.7
Manufactured Exports 2001 (\$Mil)	16,587	15,532	98,290	648,073	11.6	7.5	11.0	7.2
Manufactured as % of Total Exports 2002	95.0	92.0	93.3	89.6	0.5	-0.8	-0.7	-0.3
Number Exporting Establishments 2001	11,212	13,044	86,930	238,284	10.3	13.1	17.2	16.1
Manufacturing Shipments 2001 (\$Mil)	79,851	98,980	618,793	3,970,500	-1.2	-3.1	0.6	1.8
Manuf Exports as % Shipments 2001	20.8	15.7	15.9	16.3	13.0	11.0	10.3	5.3
Manuf GSP as % Shipments 2001	43.1	44.7	43.9	35.8	1.8	0.8	-0.2	-2.4
Manuf Exports per capita 2002 (\$)	2,459	1,880.5	1,653.4	2,131	3.8	-2.9	0.5	-2.7
%Manuf jobs export related 1997	24.8	22.2	19.2	19.8	na	na	na	na
Total GSP 2001 (\$Mil)	287,802	306,885	2,235,445	10,137,190	19.2	16.9	15.4	15.9
Manufacturing GSP 2001 (\$Mil)	34,427	44,229	271,957	1,422,990	0.6	-2.4	0.4	-0.6
Total Nonfarm Employment 2002 (1000s)	3,249	3,671	25,418	130,376	2.2	3.6	3.1	3.5
Manufacturing Employment 2002 (1000s)	348	469	2,636	15,306	-16.8	-15.0	-15.2	-12.8
Total Average Productivity 2001 (\$1000s)	86.5	83.0	86.9	76.9	13.9	12.1	10.6	10.7
Avg Productivity in Manuf 2001 (\$1000s)	88.8	86.4	94.8	86.6	8.4	5.2	8.7	6.2

The latest data available on employment related to manufactured exports (from 1997) show that 24.8% of the Commonwealth's manufacturing jobs are export related, compared to 22.2% in the rest of New England, 19.2% in the ten-state Northeast region, 19.8% US-wide. Since exports expanded faster than total shipments from 1998-2001, the export-related employment ratios have also likely increased. If the percentages did not increase, then productivity in manufactured exports would have had to increase much faster than in the manufacture of domestic shipments

■ Massachusetts, ■ New England (excl ME), and ■ Northeast values or growth rates exceed national levels.

which is unknown at this time. Similarly, the percentage of Massachusetts and regional employment related to manufactured exports, relative to the US percentage, has likely increased since exports as a percent of shipments have increased faster in the Northeast than US-wide.

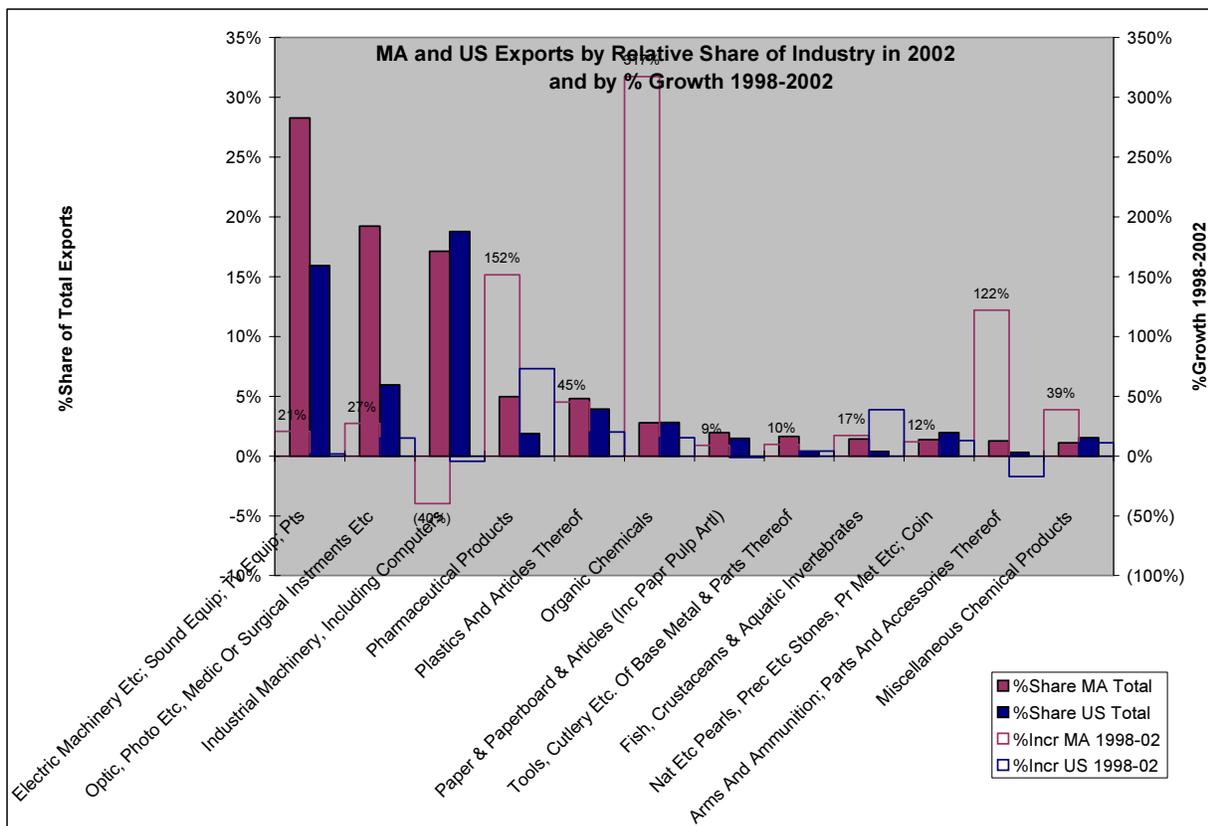
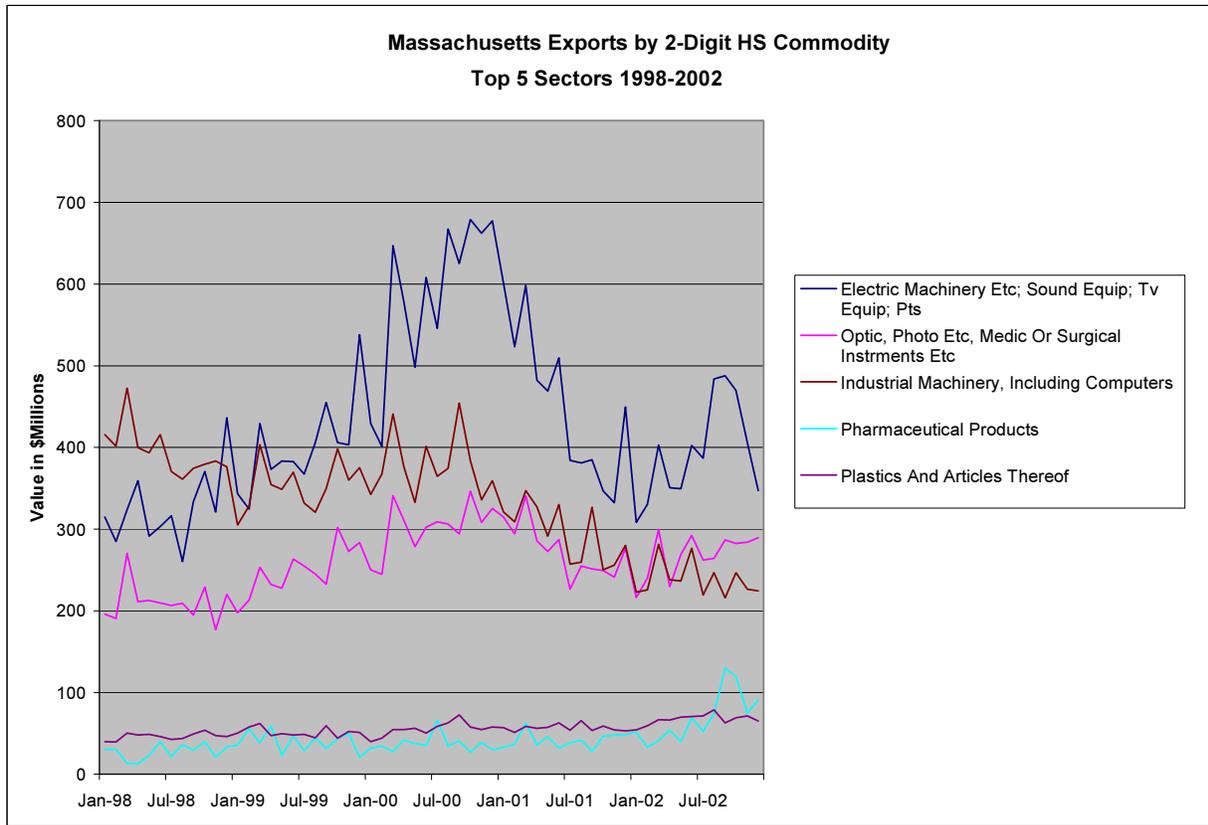
Gross state product⁴ in manufacturing as a percent of total manufactured shipments is higher in Massachusetts and the Northeast than nationally, indicating higher value added at the state and regional level. Both total productivity⁵ in all industries combined and productivity in the manufacturing sector alone are also higher and growing faster in Massachusetts and parts of the Northeast than in the rest of the country. Nationwide, and particularly in Massachusetts and the Northeast, manufacturing employment has dropped dramatically in the past five years, while GSP increased slightly in Massachusetts and the Northeast, and fell slightly US-wide. State, regional, and US growth in total GSP are all much stronger than in manufacturing GSP. Massachusetts percentage gains in both total GSP and manufacturing GSP exceed regional and US gains. However, the state's increase in total non-farm employment is smaller than regional and US increases, and the state's loss in manufacturing employment is steeper than regional and national losses.

These data show that exports, in aggregate, have become increasingly important to the Commonwealth and Northeast manufacturing sectors over the past five year. As manufacturing jobs have plummeted, the percent of shipments and jobs related to exports has increased. The balance of this report will compare Massachusetts export performance to the US as a whole and to the World, by individual industries and commodities, and by countries and regions of destination.

⁴ GSP is equal to gross output minus the cost of intermediate inputs such as energy, raw materials, semi-finished goods, and services.

⁵ Productivity is GSP divided by employment.

III. MASSACHUSETTS EXPORTS COMMODITY PERFORMANCE



Massachusetts Exports by 2-Digit Harmonized System (HS) Commodity Chapters Top 40 HS Chapters, Top 10 Gains and Losses

Highlights

- Export losses for the Commonwealth in 2002 were heavily concentrated in two sectors - electric machinery *and* industrial machinery, including computers. Electric machinery took the biggest hit falling \$738 million, or 13.5%. Industry counterparts throughout the US fared slightly better: exports for them slipped only 9.9%. Notwithstanding the poor results this year, the sector still showed a net '98-02 gain in export shipments of 20.7%, or \$820 million. The increase, which was the largest by dollar value of any industry, is thanks largely to the state's export boom year of 2000. Industrial machinery, including computers, decreased another \$696.5 million, or 19.5%, in 2002 and continued a downward spiral that has seen exports plunge \$1,884.5 million, or 39.7% since 1998.
- Optic, photo, medical or surgical instrument exports slowed by a mild 2.4% in 2002, which was a better performance than the 6.9% average export decline for the industry in the US overall. Also, for the five year period of 1998-2002, instrumentation shipments from Massachusetts were still up a healthy 27.3%, or \$688 million, the second largest gain after electric equipment.
- Pharmaceuticals were the state's top export growth sector in 2002, climbing \$332.4 million, or 67.3%. The state advance dwarfed the corresponding increase in the US of only 4.5% for pharmaceutical exports in the same period. Over the past five years, Mass pharmaceutical shipments have rocketed up by 151.5% -- more than double the US industry advance of 73.1%.
- A diversified base of other export winners in 2002 helped soften the blow from losses in electric machinery and industrial machinery. These export success stories included - plastics and articles thereof (up \$124.1 million, or 18.25); organic chemicals (up \$185.4 million, or 66.3%); precious metals (up \$110.3 million, or 78.1%) and arms and ammunition (up \$161.4 million, or 338.5%). All four sectors also showed a net export gain for 1998-2002.
- 2002 was also a good comeback year for the export of photographic or cinematographic goods, which shot up \$809.9 million, or 101.3%. Despite this robust advance, however, the sector is still down a net 14.3% for 1998-2002.

Table 1.1
Massachusetts Exports by 2-Digit Harmonized System (HS) Commodity Chapter
Top 40 HS Chapters 2002
Dollar Value of Shipments in Thousands

			MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
			2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
	HS	TOTAL ALL HS COMMODITY CHAPTERS	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.41
1	85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	4,724.1	-738.0	-13.5	-9.9	810.4	20.7	1.8	4.3
2	90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,214.7	-78.7	-2.4	-6.9	688.4	27.3	15.0	7.8
3	84	Industrial Machinery, Including Computers	2,858.4	-696.5	-19.6	-10.3	-1,884.5	-39.7	-4.3	2.2
4	30	Pharmaceutical Products	829.1	333.4	67.3	4.5	499.5	151.5	73.1	6.3
5	39	Plastics And Articles Thereof	805.2	124.1	18.2	1.3	250.9	45.3	20.0	3.0
6	29	Organic Chemicals	465.1	185.4	66.3	0.6	353.7	317.3	15.5	2.4
7	48	Paper & Paperboard & Articles (Inc Papr Pulp Artl)	326.0	-3.5	-1.1	-5.1	26.5	8.8	-1.1	3.2
8	82	Tools, Cutlery Etc. Of Base Metal & Parts Thereof	272.6	-38.0	-12.2	-2.4	24.0	9.6	4.2	9.7
9	3	Fish, Crustaceans & Aquatic Invertebrates	238.1	19.3	8.8	-2.9	34.7	17.1	38.6	8.6
10	71	Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	228.8	100.3	78.1	-7.6	24.2	11.9	13.0	1.7
11	93	Arms And Ammunition; Parts And Accessories Thereof	209.1	161.4	338.5	-3.3	114.9	122.0	-17.1	10.0
12	38	Miscellaneous Chemical Products	185.5	4.4	2.4	-0.2	51.8	38.8	11.2	1.8
13	37	Photographic Or Cinematographic Goods	160.8	80.9	101.3	11.0	-26.9	-14.3	7.5	5.6
14	98	Special Classification Provisions, Nesoi	140.9	-65.7	-31.8	-7.3	-24.6	-14.9	8.6	0.6
15	41	Raw Hides And Skins (No Furskins) And Leather	138.2	0.5	0.3	-10.1	23.1	20.1	22.7	5.7
16	95	Toys, Games & Sport Equipment; Parts & Accessories	136.5	-0.8	-0.6	-5.7	12.5	10.1	-6.8	3.8
17	28	Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	112.4	-8.2	-6.8	-3.0	24.1	27.3	12.2	1.9
18	72	Iron And Steel	95.2	-11.5	-10.8	-0.6	14.9	18.6	14.9	1.9
19	59	Impregnated Etc Text Fabrics; Tex Art For Industry	94.1	12.6	15.4	0.6	1.9	2.0	12.2	7.3
20	49	Printed Books, Newspapers Etc; Manuscripts Etc	85.5	-26.7	-23.8	-7.6	-62.5	-42.2	-4.2	2.0
21	73	Articles Of Iron Or Steel	79.4	-3.2	-3.8	-3.8	6.4	8.8	-4.7	1.0
22	32	Tanning & Dye Ext Etc; Dye, Paint, Putty Etc; Inks	65.8	0.5	0.7	2.3	21.2	47.6	12.7	1.6
23	81	Base Metals Nesoi; Cermets; Articles Thereof	64.8	-48.7	-42.9	-9.4	-3.2	-4.6	6.4	6.4
24	88	Aircraft, Spacecraft, And Parts Thereof	63.6	-14.8	-18.9	-1.8	2.7	4.5	-16.2	0.1
25	35	Albuminoidal Subst; Modified Starch; Glue; Enzymes	59.8	10.7	21.8	-6.7	-7.3	-10.9	41.9	3.5
26	76	Aluminum And Articles Thereof	57.0	0.6	1.1	-1.1	-20.9	-26.8	-10.1	1.2
27	33	Essential Oils Etc; Perfumery, Cosmetic Etc Preps	56.0	-3.9	-6.5	1.9	-20.6	-26.9	27.2	1.3
28	21	Miscellaneous Edible Preparations	53.1	5.0	10.4	2.4	7.5	16.5	23.1	1.9
29	40	Rubber And Articles Thereof	51.1	8.7	20.5	-3.1	17.3	51.4	4.6	0.8
30	87	Vehicles, Except Railway Or Tramway, And Parts Etc	50.8	-16.7	-24.8	6.4	-9.3	-15.5	5.8	0.1
31	64	Footwear, Gaiters Etc. And Parts Thereof	49.5	-5.0	-9.1	-12.8	0.8	1.7	-17.4	7.0
32	94	Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab Bd	48.2	-9.4	-16.3	-6.1	-7.9	-14.1	-3.4	0.8
33	60	Knitted Or Crocheted Fabrics	48.1	-13.8	-22.3	15.9	-28.2	-36.9	80.9	4.4
34	54	Manmade Filaments, Including Yarns & Woven Fabrics	47.5	2.3	5.1	-4.0	13.5	39.5	-4.6	2.5
35	20	Prep Vegetables, Fruit, Nuts Or Other Plant Parts	39.8	-6.4	-13.9	1.3	12.6	46.3	-3.0	1.9
36	47	Pulp Of Wood Etc; Waste Etc Of Paper & Paperboard	33.6	-6.7	-16.7	4.5	17.9	114.3	13.1	0.9
37	70	Glass And Glassware	32.7	-11.9	-26.6	-9.0	2.6	8.7	12.3	1.0
38	68	Art Of Stone, Plaster, Cement, Asbestos, Mica Etc.	29.6	-2.5	-7.8	-0.3	-11.0	-27.1	5.9	2.4
39	74	Copper And Articles Thereof	28.1	3.0	11.8	-1.5	-5.9	-17.3	3.1	1.3
40	34	Soap Etc; Waxes, Polish Etc; Candles; Dental Preps	28.0	-1.7	-5.7	3.8	-2.1	-7.1	23.9	1.1

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 1.2
Massachusetts Exports by 2-Digit Harmonized System (HS) Commodity Chapter
Top 10 Gains and Losses 2001-2002 and 1998-2002

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
HS	TOP 10 GROWTH CATEGORIES 2001-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
1	30 Pharmaceutical Products	829.1	333.4	67.3	4.5	499.5	151.5	73.1	6.3
2	29 Organic Chemicals	465.1	185.4	66.3	0.6	353.7	317.3	15.5	2.4
3	93 Arms And Ammunition; Parts And Accessories Thereof	209.1	161.4	338.5	-3.3	114.9	122.0	-17.1	10.0
4	39 Plastics And Articles Thereof	805.2	124.1	18.2	1.3	250.9	45.3	20.0	3.0
5	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	228.8	100.3	78.1	-7.6	24.2	11.9	13.0	1.7
6	37 Photographic Or Cinematographic Goods	160.8	80.9	101.3	11.0	-26.9	-14.3	7.5	5.6
7	3 Fish, Crustaceans & Aquatic Invertebrates	238.1	19.3	8.8	-2.9	34.7	17.1	38.6	8.6
8	59 Impregnated Etc Text Fabrics; Tex Art For Industry	94.1	12.6	15.4	0.6	1.9	2.0	12.2	7.3
9	35 Albuminoidal Subst; Modified Starch; Glue; Enzymes	59.8	10.7	21.8	-6.7	-7.3	-10.9	41.9	3.5
10	40 Rubber And Articles Thereof	51.1	8.7	20.5	-3.1	17.3	51.4	4.6	0.8
		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
HS	TOP 10 GROWTH CATEGORIES 1998-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
1	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	4,724.1	-738.0	-13.5	-9.9	810.4	20.7	1.8	4.3
2	90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,214.7	-78.7	-2.4	-6.9	688.4	27.3	15.0	7.8
3	30 Pharmaceutical Products	829.1	333.4	67.3	4.5	499.5	151.5	73.1	6.3
4	29 Organic Chemicals	465.1	185.4	66.3	0.6	353.7	317.3	15.5	2.4
5	39 Plastics And Articles Thereof	805.2	124.1	18.2	1.3	250.9	45.3	20.0	3.0
6	93 Arms And Ammunition; Parts And Accessories Thereof	209.1	161.4	338.5	-3.3	114.9	122.0	-17.1	10.0
7	38 Miscellaneous Chemical Products	185.5	4.4	2.4	-0.2	51.8	38.8	11.2	1.8
8	3 Fish, Crustaceans & Aquatic Invertebrates	238.1	19.3	8.8	-2.9	34.7	17.1	38.6	8.6
9	48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	326.0	-3.5	-1.1	-5.1	26.5	8.8	-1.1	3.2
10	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	228.8	100.3	78.1	-7.6	24.2	11.9	13.0	1.7
		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
HS	TOP 10 LOSSES 2001-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
1	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	4,724.1	-738.0	-13.5	-9.9	810.4	20.7	1.8	4.3
2	84 Industrial Machinery, Including Computers	2,858.4	-696.5	-19.6	-10.3	-1,884.5	-39.7	-4.3	2.2
3	90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,214.7	-78.7	-2.4	-6.9	688.4	27.3	15.0	7.8
4	98 Special Classification Provisions, Nesoi	140.9	-65.7	-31.8	-7.3	-24.6	-14.9	8.6	0.6
5	81 Base Metals Nesoi; Cermet; Articles Thereof	64.8	-48.7	-42.9	-9.4	-3.2	-4.6	6.4	6.4
6	82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	272.6	-38.0	-12.2	-2.4	24.0	9.6	4.2	9.7
7	49 Printed Books, Newspapers Etc; Manuscripts Etc	85.5	-26.7	-23.8	-7.6	-62.5	-42.2	-4.2	2.0
8	97 Works Of Art, Collectors' Pieces And Antiques	23.1	-23.8	-50.8	-37.2	-12.6	-35.3	-6.6	0.9
9	87 Vehicles, Except Railway Or Tramway, And Parts Etc	50.8	-16.7	-24.8	6.4	-9.3	-15.5	5.8	0.1
10	88 Aircraft, Spacecraft, And Parts Thereof	63.6	-14.8	-18.9	-1.8	2.7	4.5	-16.2	0.1
		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
HS	TOP 10 LOSSES 1998-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
1	84 Industrial Machinery, Including Computers	2,858.4	-696.5	-19.6	-10.3	-1,884.5	-39.7	-4.3	2.2
2	49 Printed Books, Newspapers Etc; Manuscripts Etc	85.5	-26.7	-23.8	-7.6	-62.5	-42.2	-4.2	2.0
3	60 Knitted Or Crocheted Fabrics	48.1	-13.8	-22.3	15.9	-28.2	-36.9	80.9	4.4
4	37 Photographic Or Cinematographic Goods	160.8	80.9	101.3	11.0	-26.9	-14.3	7.5	5.6
5	98 Special Classification Provisions, Nesoi	140.9	-65.7	-31.8	-7.3	-24.6	-14.9	8.6	0.6
6	76 Aluminum And Articles Thereof	57.0	0.6	1.1	-1.1	-20.9	-26.8	-10.1	1.2
7	33 Essential Oils Etc; Perfumery, Cosmetic Etc Preps	56.0	-3.9	-6.5	1.9	-20.6	-26.9	27.2	1.3
8	62 Apparel Articles And Accessories, Not Knit Etc.	13.5	-2.9	-17.9	-8.3	-19.7	-59.3	-48.9	0.6
9	56 Wadding, Felt Etc; Sp Yarn; Twine, Ropes Etc.	23.9	-7.0	-22.6	4.3	-15.7	-39.7	8.2	2.2
10	61 Apparel Articles And Accessories, Knit Or Crochet	4.6	-4.6	-50.4	-17.2	-13.5	-74.7	-12.2	0.1

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Massachusetts Exports by 4-Digit Harmonized System Commodities Top 40 Commodities, Top 10 Gains and Losses

Highlights

- It is possible at the 4-digit level to see strong winners as well as losers within an individual industry. Such is the case in electric machinery. Electronic integrated circuits and microassemblies were the top state's top 4-digit growth commodity in both 2002 and 1998-2002. At the same time, electrical apparatus for line telephony topped the Commonwealth's list of loss commodities in 2002 and was the third largest loss category at the 4-digit level for 1998-2002. The decline in line telephony exports reflects the worldwide slump in telecommunication equipment sales.
- Four-digit commodity data also reveal the main sources of the state's ongoing decreases in the industrial machinery sector. Automatic data process machines *and* parts for computers and other office machines were the state's leading loss commodities for 1998-2002, dropping by \$888.6 million (-56.8%) and \$853.9 million (65.7%), respectively.
- Product specializations are more pronounced at the 4-digit level than the 2-digit level. This is shown in the last column of Table 2.2. under the heading of "MA as % of US 2002". This column indicates Massachusetts' share of total US exports within each industry. Any industry with a share greater than 2.4% --the state's share of US exports overall - can be considered an export industry of specialization. Hormones are the state's most specialized 4-digit export commodity. In 2002, 49.1% of all export of hormones and derivatives and steroids used as hormones that were shipped from the US originated in Massachusetts.
- Within the high flying pharmaceutical sector this year, human blood; animal blood; antisera; and vaccines was the top earning sub-sector commodity, advancing by \$249.9 million, or 237.7%. This compares to a corresponding US increase of only 17.7%.
- In the mature plastics industry, growth is being driven by recent surges in the export of polyethers, epoxides & polyesters *and* polymers of styrene, in primary form. From 1998-2002, these two sub-sectors have seen exports increase by 201.2% and 334.9%, respectively.

Table 2.1
Massachusetts Exports by 4-Digit Harmonized System (HS) Commodities
Top 40 Commodities 2002
Dollar Value of Shipments in Millions

			MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
			2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
	HS4	TOTAL ALL HS4 COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
1	8542	Electronic Integrated Circuits & Microassembl, Pts	1,862.8	332.5	21.7	-5.4	539.6	40.8	12.0	4.9
2	9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	1,109.5	-53.4	-4.6	-1.1	194.9	21.3	22.6	11.0
3	8471	Automatic Data Process Machines; Magn Reader Etc	676.5	-308.0	-31.3	-20.4	-888.6	-56.8	-15.6	3.1
4	9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	636.3	48.6	8.3	-17.4	155.4	32.3	-0.8	14.1
5	8517	Electric Apparatus For Line Telephony Etc, Parts	488.7	-737.3	-60.1	-21.2	-301.4	-38.2	3.4	5.7
6	9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	466.9	64.6	16.0	-5.8	186.1	66.3	16.6	13.9
7	8473	Parts Etc For Typewriters & Other Office Machines	446.3	-311.3	-41.1	-16.6	-853.9	-65.7	-14.7	2.7
8	3004	Medicaments Nesoi, Mixed Or Not, In Dosage Etc Fm	436.1	91.8	26.6	-1.4	262.5	151.2	116.0	5.2
9	2937	Hormones; Derivatives & Steroids Used As Hormones	419.8	181.2	75.9	21.8	336.7	405.2	83.5	49.1
10	8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	364.9	43.5	13.5	-6.6	-150.1	-29.1	20.0	2.2
11	3002	Human Blood; Animal Blood; Antisera, Vaccines Etc	355.1	249.9	237.7	17.7	258.1	266.2	37.5	12.9
12	8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	288.3	-101.6	-26.1	25.9	52.4	22.2	39.4	11.1
13	8518	Microphones; Loudspeakers; Sound Amplifier Etc, Pt	251.9	26.3	11.7	-21.5	209.2	489.6	26.6	15.4
14	8421	Centrifuges; Filter Etc Mach For Liq Or Gases; Pts	238.5	-22.1	-8.5	-4.9	69.7	41.3	23.5	6.3
15	8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	235.8	-47.2	-16.7	-14.0	108.6	85.4	15.5	5.9
16	8212	Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	219.1	-11.7	-5.1	2.1	23.3	11.9	13.5	63.8
17	8524	Records, Tapes & Other Recorded Sound Media Etc	198.4	-20.1	-9.2	-4.5	-96.1	-32.6	-14.0	6.2
18	8529	Parts For Television, Radio And Radar Apparatus	189.4	4.0	2.1	-7.4	88.2	87.1	-4.7	4.0
19	9306	Bombs, Grenades Etc; Cartridges Etc And Parts	188.7	154.0	443.0	1.0	104.1	122.9	-5.1	12.3
20	8479	Machines Etc Having Individual Functions Nesoi, Pt	184.7	-86.1	-31.8	-21.5	10.8	6.2	-4.7	2.9
21	9032	Automatic Regulating Or Control Instruments; Parts	166.5	-15.1	-8.3	-5.1	59.1	55.0	8.5	5.7
22	9022	X-Ray Etc Apparatus; Tubes, Panels, Screen Etc, Pt	159.8	45.0	39.2	3.4	86.1	116.6	33.7	8.0
23	9021	Orthopedic Appl; Artif Body Pts; Hear Aid; Pts Etc	154.3	21.1	15.8	9.0	66.5	75.8	68.9	4.8
24	8536	Electrical Apparatus For Switching Etc, Nov 1000 V	149.4	-32.8	-18.0	-9.4	-55.6	-27.1	12.5	2.9
25	3926	Articles Of Plastics (Inc Polymers & Resins) Nesoi	148.2	10.0	7.2	-12.0	58.9	65.9	17.0	4.3
26	8526	Radar Apparatus, Radio Navig Aid & Remote Cont App	135.8	-13.6	-9.1	-2.4	128.9	1,865.4	9.6	11.5
27	3907	Polyethers, Exopoxides & Polyesters, Primary Forms	135.5	71.4	111.2	-2.1	90.5	201.2	16.3	4.7
28	306	Crustcns Lve Frsh Etc, Ckd Etc.; Flrs Mls H Cnsump	125.4	21.3	20.5	8.4	51.4	69.5	19.1	26.3
29	3920	Plates, Sheets, Film Etc No Ad, Non-Cel Etc, Plast	123.2	0.3	0.2	-1.1	-42.8	-25.8	2.9	4.5
30	8504	Elec Trans, Static Conv & Induct, Adp Pwr Supp, Pt	122.4	-51.4	-29.6	-24.8	-23.5	-16.1	-8.4	4.3
31	3822	Composite Diagnostic/Lab Reagents, Exc Pharmaceut	120.8	2.0	1.7	3.9	52.4	76.6	42.7	4.4
32	4101	Raw Hides & Skins Of Bovine Or Equine Animals	118.8	3.6	3.1	-13.9	36.8	44.9	44.4	8.0
33	9506	Artls & Equip F Genrl Physcl Exerc Etc; Pools; Pts	99.1	-0.5	-0.5	-5.9	28.3	39.9	-4.2	6.2
34	9026	Inst Etc Measure Or Check Flow, Level Etc, Pts Etc	94.4	-14.4	-13.2	-5.2	-52.7	-35.8	14.2	7.5
35	4811	Paper, Paperboard, Wad Etc, Coat Etc Nesoi, RI Etc	93.2	12.2	15.1	2.5	22.3	31.5	19.9	7.2
36	8544	Insulated Wire, Cable Etc; Opt Sheath Fib Cables	87.6	-36.2	-29.2	-14.2	-1.9	-2.1	-8.8	2.0
37	8442	Mach Etc Nesoi For Typeset, Making Pr Plates Etc	86.0	-12.2	-12.5	-12.9	-49.2	-36.4	-23.8	27.7
38	3702	Photo Film In Rolls Sensitized, Unexposed	84.1	77.4	1,158.2	17.4	-11.9	-12.4	11.6	6.3
39	7112	Waste & Scrap Of Prec Metal Or Other Cont Prec Mtl	83.1	46.8	129.0	-0.8	72.6	692.5	57.0	6.7
40	9031	Machines, Nesoi In Chapter 90; Profile Project, Pt	80.1	-52.1	-39.4	-7.6	-14.0	-14.8	21.1	2.9

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 2.2
Massachusetts Exports by 4-Digit Harmonized System (HS) Commodities
Top 10 Gains and Losses 2001-2002 and 1998-2002

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
HS4	TOP 10 GROWTH CATEGORIES 2001-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
8542	Electronic Integrated Circuits & Microassembl, Pts	1,862.8	332.5	21.7	-5.4	539.6	40.8	12.0	4.9
3002	Human Blood; Animal Blood; Antisera, Vaccines Etc	355.1	249.9	237.7	17.7	258.1	266.2	37.5	12.9
2937	Hormones; Derivatives & Steroids Used As Hormones	419.8	181.2	75.9	21.8	336.7	405.2	83.5	49.1
9306	Bombs, Grenades Etc; Cartridges Etc And Parts	188.7	154.0	443.0	1.0	104.1	122.9	-5.1	12.3
3004	Medicaments Nesoi, Mixed Or Not, In Dosage Etc Fm	436.1	91.8	26.6	-1.4	262.5	151.2	116.0	5.2
3702	Photo Film In Rolls Sensitized, Unexposed	84.1	77.4	1,158.2	17.4	-11.9	-12.4	11.6	6.3
3907	Polyethers, Expoxides & Polyesters, Primary Forms	135.5	71.4	111.2	-2.1	90.5	201.2	16.3	4.7
9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	466.9	64.6	16.0	-5.8	186.1	66.3	16.6	13.9
3903	Polymers Of Styrene, In Primary Forms	75.7	51.8	217.3	3.7	58.3	334.9	-0.1	9.6
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	636.3	48.6	8.3	-17.4	155.4	32.3	-0.8	14.1
		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
HS4	TOP 10 GROWTH CATEGORIES 1998-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
8542	Electronic Integrated Circuits & Microassembl, Pts	1,862.8	332.5	21.7	-5.4	539.6	40.8	12.0	4.9
2937	Hormones; Derivatives & Steroids Used As Hormones	419.8	181.2	75.9	21.8	336.7	405.2	83.5	49.1
3004	Medicaments Nesoi, Mixed Or Not, In Dosage Etc Fm	436.1	91.8	26.6	-1.4	262.5	151.2	116.0	5.2
3002	Human Blood; Animal Blood; Antisera, Vaccines Etc	355.1	249.9	237.7	17.7	258.1	266.2	37.5	12.9
8518	Microphones; Loudspeakers; Sound Amplifier Etc, Pt	251.9	26.3	11.7	-21.5	209.2	489.6	26.6	15.4
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	1,109.5	-53.4	-4.6	-1.1	194.9	21.3	22.6	11.0
9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	466.9	64.6	16.0	-5.8	186.1	66.3	16.6	13.9
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	636.3	48.6	8.3	-17.4	155.4	32.3	-0.8	14.1
8526	Radar Apparatus, Radio Navig Aid & Remote Cont App	135.8	-13.6	-9.1	-2.4	128.9	1,865.4	9.6	11.5
8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	235.8	-47.2	-16.7	-14.0	108.6	85.4	15.5	5.9
		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
HS4	TOP 10 LOSSES 2001-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
8517	Electric Apparatus For Line Telephony Etc, Parts	488.7	-737.3	-60.1	-21.2	-301.4	-38.2	3.4	5.7
8473	Parts Etc For Typewriters & Other Office Machines	446.3	-311.3	-41.1	-16.6	-853.9	-65.7	-14.7	2.7
8471	Automatic Data Process Machines; Magn Reader Etc	676.5	-308.0	-31.3	-20.4	-888.6	-56.8	-15.6	3.1
8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	288.3	-101.6	-26.1	25.9	52.4	22.2	39.4	11.1
9006	Photographic Still Cameras, Flash Apparatus Etc	63.1	-86.4	-57.8	-7.2	-30.3	-32.4	9.4	12.1
8479	Machines Etc Having Individual Functions Nesoi, Pt	184.7	-86.1	-31.8	-21.5	10.8	6.2	-4.7	2.9
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	1,109.5	-53.4	-4.6	-1.1	194.9	21.3	22.6	11.0
9031	Machines, Nesoi In Chapter 90; Profile Project, Pt	80.1	-52.1	-39.4	-7.6	-14.0	-14.8	21.1	2.9
8504	Elec Trans, Static Conv & Induct, Adp Pwr Supp, Pt	122.4	-51.4	-29.6	-24.8	-23.5	-16.1	-8.4	4.3
8103	Tantalum & Articles Thereof, Includ Waste & Scrap	41.3	-49.8	-54.6	-0.6	-6.4	-13.5	162.8	19.1
		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
HS4	TOP 10 LOSSES 1998-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
8471	Automatic Data Process Machines; Magn Reader Etc	676.5	-308.0	-31.3	-20.4	-888.6	-56.8	-15.6	3.1
8473	Parts Etc For Typewriters & Other Office Machines	446.3	-311.3	-41.1	-16.6	-853.9	-65.7	-14.7	2.7
8517	Electric Apparatus For Line Telephony Etc, Parts	488.7	-737.3	-60.1	-21.2	-301.4	-38.2	3.4	5.7
8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	364.9	43.5	13.5	-6.6	-150.1	-29.1	20.0	2.2
8524	Records, Tapes & Other Recorded Sound Media Etc	198.4	-20.1	-9.2	-4.5	-96.1	-32.6	-14.0	6.2
7106	Silver (Incl Prec Plated), Unwr, Semimfr Or Powder	7.3	-3.9	-34.5	16.4	-96.0	-92.9	-61.4	3.1
8536	Electrical Apparatus For Switching Etc, Nov 1000 V	149.4	-32.8	-18.0	-9.4	-55.6	-27.1	12.5	2.9
9026	Inst Etc Measure Or Check Flow, Level Etc, Pts Etc	94.4	-14.4	-13.2	-5.2	-52.7	-35.8	14.2	7.5
4901	Books, Brochures & Similar Printed Matter	64.4	-9.1	-12.4	-2.7	-49.4	-43.4	-5.1	3.2
8442	Mach Etc Nesoi For Typeset, Making Pr Plates Etc	86.0	-12.2	-12.5	-12.9	-49.2	-36.4	-23.8	27.7

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Massachusetts Top 100 Export Commodities, Top 10 Potential Markets of Opportunity Description of Table 2.3

Among the state's top 100 products exported, Massachusetts's export growth to the world is frequently higher than US growth to the world. Also, Massachusetts has very high specialization in many of its leading products for export. However, the countries listed in table 2.3 for each of Massachusetts's top 100 export commodities may represent additional opportunities for Massachusetts. The countries represent the top 10 growth markets for the US (by dollar increase 1998-2001) where Massachusetts's percent growth was less than 50% of US growth *or* where Massachusetts's share of total US exports of the commodity to the country is less than 50% of its share of total US exports of the commodity to the world.⁶

As an example, Massachusetts has extremely high export growth and specialization in oscilloscopes and spectrum analyzers, the state's fourth largest export commodity. Nevertheless, in certain markets including Israel, United Arab Emirates, Canada, Denmark, Bulgaria, Kuwait, Ecuador, Federated States Of Micronesia, Kenya, and Palau, other states have grown twice as fast or have double the market penetration.

⁶ The list of top 10 countries is intended as a starting point for evaluating potential markets. The list does not take into account current market conditions. See appendix for other limitations.

Table 2.3

Massachusetts Top 100 Export Commodities: Top 10 Potential Markets of Opportunity

	Massachusetts's Top 100 Export Commodities	MA 2002	MA	US	MA as	Potential Markets of Opportunity for Massachusetts
		(\$Mil)	%98-02	%98-02	%US	(Top US growth markets 1998-2002 where MA growth or market penetration is low relative to US)
1	Electronic Integrated Circuits & Microassembl, Pts	1,862.8	40.8	12.0	4.9	Mexico, Taiwan, China, Germany, Korea, Israel, Finland, Netherlands, Austria, Malta And Gozo
2	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	1,109.5	21.3	22.6	11.0	Mexico, Italy, UK, Ireland, Belgium, Switzerland, India, Spain, Malaysia, Taiwan
3	Automatic Data Process Machines; Magn Reader Etc	676.5	-56.8	-15.6	3.1	Mexico, Korea, China, Thailand, Paraguay, Hong Kong, Malaysia, Ecuador, Jamaica, Dom Rep
4	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	636.3	32.3	-0.8	14.1	Israel, UAE, Canada, Denmark, Bulgaria, Kuwait, Ecuador, Fedrated States Of Micronesia, Kenya, Palau
5	Electric Apparatus For Line Telephony Etc, Parts	488.7	-38.2	3.4	5.7	Netherlands, China, Afghanistan, Poland, Thailand, Jamaica, Guatemala, Nigeria, Trinidad, Macao
6	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	466.9	66.3	16.6	13.9	China, Singapore, Malaysia, UAE, Finland, Dom Rep, Hungary, Ukraine, Nigeria, Portugal
7	Parts Etc For Typewriters & Other Office Machines	446.3	-65.7	-14.7	2.7	Mexico, Canada, China, Thailand, Korea, Costa Rica, Guatemala, Dom Rep, Ecuador, Namibia
8	Medicaments Nesoi, Mixed Or Not, In Dosage Etc Fm	436.1	151.2	116.0	5.2	Canada, Belgium, Netherlands, France, Mexico, Switzerland, Italy, China, Bermuda, Malaysia
9	Hormones; Derivatives & Steriods Used As Hormones	419.8	405.2	83.5	49.1	Canada, Belgium, Singapore, Korea, New Zealand, Hungary, Uruguay, China, Denmark, Austria
10	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	364.9	-29.1	20.0	2.2	France, Brazil, Germany, Canada, Singapore, Mexico, Malaysia, Spain, Belgium, Venezuela
11	Human Blood; Animal Blood; Antisera, Vaccines Etc	355.1	266.2	37.5	12.9	Belgium, Canada, Switzerland, Sweden, Austria, Taiwan, Brazil, Mexico, Australia, Italy
12	Electrical Mach Etc, With Ind Functions Nesoi, Pts	288.3	22.2	39.4	11.1	Taiwan, Mexico, Japan, Israel, Thailand, Turkey, Finland, Republic Of Yemen, Dom Rep, Romania
13	Microphones; Loudspeakers; Sound Amplifier Etc, Pt	251.9	489.6	26.6	15.4	Mexico, Korea, Finland, Canada, Malaysia, Singapore, Spain, Netherlands, Jamaica, Jordan
14	Centrifuges; Filter Etc Mach For Liq Or Gases; Pts	238.5	41.3	23.5	6.3	Canada, Korea, Mexico, Netherlands, Argentina, Brazil, Costa Rica, UAE, Singapore, Nigeria
15	Semiconductor Devices; Light-Emit Diodes Etc, Pts	235.8	85.4	15.5	5.9	Mexico, Japan, Taiwan, Spain, India, Costa Rica, Australia, Israel, Poland, Dom Rep
16	Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	219.1	11.9	13.5	63.8	China, Mexico, Brazil, Venezuela, Trinidad, Dom Rep, Jamaica, Netherlands Antilles, Aruba, Barbados
17	Records, Tapes & Other Recorded Sound Media Etc	198.4	-32.6	-14.0	6.2	India, Korea, Mexico, Saudi Arabia, UAE, Bermuda, Guatemala, Jamaica, Afghanistan, Nigeria
18	Parts For Television, Radio And Radar Apparatus	189.4	87.1	-4.7	4.0	Mexico, China, Malaysia, Canada, France, Saudi Arabia, Egypt, Romania, India, Finland
19	Bombs, Grenades Etc; Cartridges Etc And Parts	188.7	122.9	-5.1	12.3	UK, Korea, Spain, Bahrain, Australia, Luxembourg, France, Algeria, Slovenia, Iceland
20	Machines Etc Having Individual Functions Nesoi, Pt	184.7	6.2	-4.7	2.9	Germany, Bahamas, Denmark, Hungary, Iraq, Spain, UAE, Costa Rica, Poland, Ecuador
21	Automatic Regulating Or Control Instruments; Parts	166.5	55.0	8.5	5.7	Mexico, Austria, Japan, Sweden, Canada, Qatar, Bangladesh, Saudi Arabia, Jamaica, Niger
22	X-Ray Etc Apparatus; Tubes, Panels, Screen Etc, Pt	159.8	116.6	33.7	8.0	Germany, Netherlands, Korea, Mexico, India, UK, Singapore, Switzerland, Venezuela, Romania
23	Orthopedic Appl; Artif Body Pts; Hear Aid; Pts Etc	154.3	75.8	68.9	4.8	Ireland, Japan, Netherlands, Sweden, Mexico, Hong Kong, Australia, Costa Rica, Brazil, Colombia
24	Electrical Apparatus For Switching Etc, Nov 1000 V	149.4	-27.1	12.5	2.9	Mexico, Germany, Canada, Netherlands, Korea, Singapore, Dom Rep, Malaysia, Honduras, Spain
25	Articles Of Plastics (Inc Polymers & Resins) Nesoi	148.2	65.9	17.0	4.3	Mexico, New Zealand, China, Italy, Australia, Zimbabwe, Philippines, Guatemala, Czech Republic, Saudi Arabia
26	Radar Apparatus, Radio Navig Aid & Remote Cont App	135.8	1,865.4	9.6	11.5	Korea, France, Taiwan, Egypt, Mexico, Estonia, Netherlands, Australia, Spain, Hong Kong
27	Polyethers, Expoixides & Polyesters, Primary Forms	135.5	201.2	16.3	4.7	China, Hong Kong, Korea, Peru, Taiwan, Thailand, Switzerland, Spain, Dom Rep, Egypt
28	Crustcns Lve Frsh Etc, Ckd Etc.; Flrs Mls H Cnsump	125.4	69.5	19.1	26.3	Canada, Korea, Dom Rep, Thailand, Bahrain, Qatar, Guatemala, Turks/Caicos, Venezuela, Bahamas
29	Plates, Sheets, Film Etc No Ad, Non-Cel Etc, Plast	123.2	-25.8	2.9	4.5	China, Dom Rep, France, Thailand, Belgium, Guatemala, Malaysia, India, S. Africa, Hungary
30	Elec Trans, Static Conv & Induct, Adp Pwr Supp, Pt	122.4	-16.1	-8.4	4.3	China, Canada, Thailand, Costa Rica, Denmark, Barbados, Russia, Dom Rep, Indonesia, Ghana
31	Composite Diagnostic/Lab Reagents, Exc Pharmaceut	120.8	76.6	42.7	4.4	UK, India, Sweden, China, UAE, Spain, New Zealand, Costa Rica, Poland, Malaysia
32	Raw Hides & Skins Of Bovine Or Equine Animals	118.8	44.9	44.4	8.0	Hong Kong, Thailand, Germany, Indonesia, Uruguay, Hungary, Croatia, Vietnam, New Zealand, Belgium
33	Artls & Equip F Genrl Physci Exerc Etc; Pools; Pts	99.1	39.9	-4.2	6.2	Korea, Canada, Hong Kong, Russia, Philippines, UAE, India, Finland, Denmark, Kuwait
34	Inst Etc Measure Or Check Flow, Level Etc, Pts Etc	94.4	-35.8	14.2	7.5	Canada, Germany, Korea, China, Brazil, Mexico, Taiwan, Hungary, Singapore, Italy

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 2.3 (Continued)

Massachusetts Top 100 Export Commodities: Top 10 Potential Markets of Opportunity

	Massachusetts's Top 100 Export Commodities	MA 2002	MA	US	MA as	Potential Markets of Opportunity for Massachusetts
		(\$Mil)	%98-02	%98-02	%US	(Top US growth markets 1998-2002 where MA growth or market penetration is low relative to US)
35	Paper, Paperboard, Wad Etc, Coat Etc Nesoi, RI Etc	93.2	31.5	19.9	7.2	China, Japan, Netherlands, Taiwan, El Salvador, Dom Rep, Panama, Indonesia, Chile, Guatemala
36	Insulated Wire, Cable Etc; Opt Sheath Fib Cables	87.6	-2.1	-8.8	2.0	Canada, Sweden, Austria, Ireland, Malaysia, Belgium, Australia, Philippines, Indonesia, Honduras
37	Mach Etc Nesoi For Typeset, Making Pr Plates Etc	86.0	-36.4	-23.8	27.7	Ecuador, Saudi Arabia, Philippines, Colombia, UAE, Venezuela, Uruguay, Malaysia, Nigeria, Jamaica
38	Photo Film In Rolls Sensitized, Unexposed	84.1	-12.4	11.6	6.3	France, Canada, Mexico, China, India, Korea, Russia, Dom Rep, Ireland, Ecuador
39	Waste & Scrap Of Prec Metal Or Other Cont Prec Mtl	83.1	692.5	57.0	6.7	UK, Saudi Arabia, China, Japan, Guatemala, Germany, Sweden, India, Brazil, Poland
40	Machines, Nesoi In Chapter 90; Profile Project, Pt	80.1	-14.8	21.1	2.9	Taiwan, Japan, Mexico, Germany, Canada, Malaysia, Czech Republic, UAE, Saudi Arabia, Greece
41	Printed Circuits	76.0	111.1	-6.5	3.5	China, Finland, Israel, Hungary, New Zealand, St. Lucia, Portugal, Sweden, Egypt, Bulgaria
42	Polymers Of Styrene, In Primary Forms	75.7	334.9	-0.1	9.6	Belgium, Hong Kong, France, Taiwan, Turkey, Spain, Thailand, Dom Rep, El Salvador, Greece
43	Air Or Vac Pumps, Compr & Fans; Hoods & Fans; Pts	71.3	46.1	5.4	2.1	Mexico, China, Singapore, Ireland, Vietnam, Russia, Kuwait, Kazakhstan, Saudi Arabia, Malaysia
44	Machinery For Working Rubber & Plast Etc Nesoi, Pt	67.9	10.7	-13.6	7.0	Kazakhstan, Belgium, Saudi Arabia, Hungary, Dom Rep, Malaysia, Germany, Luxembourg, Slovakia, Romania
45	Trans Appar For Radiotele Etc; Tv Camera & Rec	66.3	46.6	-21.2	1.3	Canada, Mexico, Germany, Guatemala, Ecuador, Algeria, Malaysia, UAE, Dom Rep, Uzbekistan
46	Books, Brochures & Similar Printed Matter	64.4	-43.4	-5.1	3.2	UK, Korea, Singapore, Mexico, Taiwan, Malaysia, Nigeria, Ghana, Djibouti, Kazakhstan
47	Photographic Still Cameras, Flash Apparatus Etc	63.1	-32.4	9.4	12.1	Mexico, Hong Kong, China, Germany, Panama, Canada, Russia, Netherlands Antilles, Hungary, Costa Rica
48	Paper & Paperboard, Uncoat, Nesoi, Rolls Or Sheets	60.3	5.8	-18.5	16.3	Saudi Arabia, Vietnam, Egypt, Trinidad, Guyana, UAE, Ireland, Sweden, Jamaica, Cyprus
49	Print Mach Incl Ink-Jet Mach Ancil T Prnt Pt Nesoi	60.2	-38.2	-24.3	7.2	Indonesia, Barbados, Thailand, Saudi Arabia, Pakistan, Vietnam, Kuwait, Honduras, Jordan, Ghana
50	Machinery Etc For Temp Chang Treat Mat; W Heat, Pt	59.2	46.1	-4.6	3.4	Japan, Peru, Russia, Ecuador, Saudi Arabia, Cameroon, Romania, Uzbekistan, Guatemala, Netherlands Antilles
51	Taps, Cocks, Valves Etc For Pipes, Tanks Etc, Pts	59.0	-8.9	14.9	1.7	Mexico, Canada, Belgium, China, Brazil, Switzerland, Taiwan, Singapore, UAE, Italy
52	Plates, Sheets, Film, Foil & Strip Nesoi, Plastics	58.9	112.8	21.9	6.1	Mexico, China, Korea, Thailand, Belgium, Finland, Germany, India, Haiti, Costa Rica
53	Parts For Elec Appar Etc Of Head 8535, 8536 & 8537	56.5	-26.8	2.8	3.3	Germany, Australia, Thailand, Singapore, Hong Kong, Philippines, Israel, Vietnam, Belgium, S. Africa
54	Molding Boxes For Metal Foundry; Mold Bases Etc	56.0	291.6	-14.3	7.2	Costa Rica, Luxembourg, Spain, Malaysia, Germany, Turkey, Hungary, Taiwan, Israel, Nigeria
55	Electric Capacitors, Fixed, Var Or Adj (Preset) Pt	55.7	15.4	1.2	3.3	Malaysia, Netherlands, Hong Kong, Brazil, Czech Republic, El Salvador, Australia, China, UAE, S. Africa
56	Photographic Chemicals; Unmixed Prod Retail Packed	54.5	27.3	25.6	8.7	Mexico, China, Belgium, UK, France, Australia, Ireland, Czech Republic, Israel, Georgia
57	Parts Of Balloons Etc, Aircraft, Spacecraft Etc	53.8	-7.0	-3.9	0.4	Brazil, Netherlands, New Zealand, Korea, Thailand, Italy, Bahrain, Mexico, Venezuela, Portugal
58	Parts Etc For Machine Tools Of Head 8456 To 8465	50.6	-34.0	-16.0	3.0	Taiwan, Honduras, China, Singapore, Philippines, Netherlands, Ecuador, Belgium, Nigeria, Romania
59	Food Preparations Nesoi	49.5	13.1	14.1	2.7	Korea, Israel, Netherlands, Mexico, China, Australia, Malaysia, Singapore, Dom Rep, Hungary
60	Primary Cells & Batteries, Parts	48.8	157.1	-5.3	8.9	Ireland, Israel, China, Australia, Guatemala, French Guiana, Sweden, Nigeria, Ecuador, Bahamas
61	Ferrous Waste & Scrap; Remelt Scr Iron/Steel Ingot	48.5	0.1	61.3	3.7	Taiwan, Korea, India, Thailand, Japan, Finland, Singapore, Vietnam, Guatemala, Indonesia
62	Industrial Or Lab Elec Furnaces Etc, Parts	48.3	17.2	12.0	8.1	Taiwan, France, Canada, Singapore, Hong Kong, Russia, Thailand, Chad, Italy, Venezuela
63	Machine Tools For Material Removal By Laser Etc	47.8	-33.9	-1.1	5.1	China, Germany, Malaysia, Israel, Thailand, Slovenia, Italy, Slovakia, Bangladesh, Honduras
64	Self-Adhesive Plates, Sheets, Film Etc Of Plastics	44.8	-0.2	22.2	4.0	Canada, Mexico, Singapore, China, Korea, Germany, Hong Kong, Japan, Ireland, Malaysia
65	Paper, Uncoat, For Writing Etc, Rolls; Hndmd Paper	44.6	66.7	6.5	7.4	Canada, Australia, Taiwan, Turkey, Brazil, China, Malaysia, UK, Nigeria, Vietnam
66	Liquid Crystal Devices Nesoi; Lasers; Opt Appl; Pt	44.5	83.0	62.8	3.0	Mexico, Netherlands, China, Austria, Ireland, Spain, Brazil, Thailand, India, Belgium
67	Personal Toilet Etc Prep Nesoi, Shaving, Bath Etc.	43.0	-30.0	18.7	8.1	Canada, Mexico, Korea, Australia, Paraguay, Philippines, Taiwan, Hong Kong, Guatemala, UAE
68	Pile Fabrics, Knitted Or Crocheted	42.6	-40.3	-2.8	23.7	Mexico, Guatemala, Colombia, Dom Rep, Australia, Costa Rica, Morocco, Nigeria, Ghana, Congo (Brazzaville)

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 2.3 (Continued)

Massachusetts Top 100 Export Commodities: Top 10 Potential Markets of Opportunity

	Massachusetts's Top 100 Export Commodities	MA 2002	MA	US	MA as	Potential Markets of Opportunity for Massachusetts
		(\$Mil)	%98-02	%98-02	%US	(Top US growth markets 1998-2002 where MA growth or market penetration is low relative to US)
69	Tantalum & Articles Thereof, Includ Waste & Scrap	41.3	-13.5	162.8	19.1	UK, Israel, Mexico, Taiwan, Sweden, China, Portugal, Estonia, Pakistan, Poland
70	Radioactive Chemical Elements & Isotopes Etc.	40.0	13.4	49.0	2.7	Japan, Russia, Taiwan, UK, Australia, Portugal, Chile, Austria, Pakistan, Kazakhstan
71	Electric Motors And Generators (No Sets)	39.9	53.1	7.7	2.6	Brazil, Mexico, Spain, France, Venezuela, Italy, Malaysia, Haiti, Turkey, Norway
72	Gold (Incl Plat Plated), Unwr, Semimfr Or Powder	39.1	-10.6	-41.8	1.3	Luxembourg, UAE, Malaysia, Costa Rica, India, Brazil, Armenia, Guatemala, Singapore, Philippines
73	Pumps For Liquids; Liquid Elevators; Parts Thereof	39.0	4.9	9.6	1.2	Mexico, Russia, UAE, Sweden, China, Australia, Chad, Singapore, Saudi Arabia, Germany
74	Prepared Unrecorded Media (No Film) For Sound Etc.	38.5	-18.7	-46.4	3.2	China, Mexico, Paraguay, Hong Kong, UAE, Belgium, Guatemala, Indonesia, Ecuador, Dom Rep
75	Rubberized Textile Fabrics, Other Than Tire Cord	37.8	38.8	8.4	27.6	Mexico, Netherlands, Dom Rep, Singapore, Venezuela, Korea, India, Haiti, Costa Rica, Honduras
76	Electric Sound Or Visual Signaling Apparatus, Pts	35.6	46.9	15.4	3.4	Mexico, Germany, Dom Rep, Netherlands, Ireland, China, Finland, Malaysia, France, Turkey
77	Reception Apparatus For Radiotelephony Etc	35.1	400.7	2.1	2.9	Canada, India, Ecuador, Korea, Turkey, Sweden, Israel, Nigeria, Finland, Austria
78	Fish, Frozen (No Fish Fillets Or Other Fish Meat)	34.4	-5.0	51.1	3.2	Japan, China, Thailand, Vietnam, Portugal, Mexico, Nigeria, Sweden, UK, Germany
79	FI-RI Stainless Steel Products, Under 600mm Wide	33.9	134.6	21.0	16.2	Canada, Mexico, China, Hong Kong, Italy, Brazil, Malaysia, Jamaica, Sweden, Austria
80	Amino-Resins, Phenolics & Polyurethanes, Prim Form	33.3	94.8	29.0	4.3	Mexico, Thailand, Canada, Colombia, Pakistan, Costa Rica, El Salvador, Portugal, Kuwait, Egypt
81	Boards, Panels Etc Elec Switch And N/C Appar Etc.	32.6	-12.4	25.8	2.5	Canada, Mexico, Netherlands, Australia, Sweden, China, Republic Of Yemen, Hong Kong, Belgium, Venezuela
82	Handsaws & Met Pts; Saw Blades; Base Mtl Saw Parts	32.3	15.1	22.9	18.9	Sweden, Mexico, Malaysia, China, Italy, Korea, Brazil, Germany, Philippines, Venezuela
83	Machines Etc For Testing Mech Prop Of Material, Pt	32.0	31.9	-27.1	6.4	Saudi Arabia, Japan, Germany, Bangladesh, Colombia, Pakistan, Finland, Austria, Honduras, Dom Rep
84	Textile Fabrics (Not Tire Cord) Coat Etc, Plastics	31.5	29.7	37.1	5.3	China, Russia, Dom Rep, Germany, Korea, Turkey, Greece, Vietnam, Sweden, UAE
85	Diamonds, Worked Or Not, Not Mounted Or Set	31.4	253.8	67.9	0.7	Israel, Hong Kong, India, UAE, UK, Switzerland, Mexico, Thailand, Guatemala, France
86	Articles Of Jewelry & Pts, Of Prec Metal Or Clad	30.8	67.2	109.5	1.4	Hong Kong, Switzerland, Japan, Dom Rep, Netherlands Antilles, Italy, India, France, Thailand, Aruba
87	Survey, Hydrogr, Meteor Etc Inst; Rangef Etc, Pts	30.2	-28.5	-17.6	4.1	Canada, China, Panama, Mexico, India, Bahamas, Uzbekistan, Malaysia, Spain, Saudi Arabia
88	Pts, Nesoi For Machines,Appln,Inst/Appts Of Chap90	29.8	98.8	99.7	6.7	Mexico, Ireland, Japan, Australia, Netherlands, Italy, Dom Rep, Nigeria, Kuwait, Thailand
89	Refrigerators, Freezers Etc; Heat Pumps Nesoi, Pts	29.2	416.1	-15.3	1.5	China, Belgium, Indonesia, UAE, Vietnam, Nigeria, Qatar, Bermuda, Norway, Trinidad
90	Articles Of Iron Or Steel, Nesoi	28.9	61.0	17.5	1.3	China, Brazil, Korea, Taiwan, Mexico, Liberia, Spain, Trinidad, Ukraine, Chad
91	Paper, Paperboard, Cellul Wad To Size & Arts Nesoi	28.8	73.7	-22.8	4.5	Mexico, Dom Rep, Russia, Thailand, Guatemala, UAE, El Salvador, Germany, Singapore, Bahamas
92	Molluscs & Aqua Invert Nesoi, Lve Etc.; Flours Etc	28.3	-11.9	5.5	14.5	Canada, Philippines, Venezuela, Croatia, Thailand, New Zealand, Malta And Gozo, Germany, Dom Rep, Saudi Arabia
93	Opt Fibers & Bund Etc; Pol Sheets; Unmoun Opt Elem	26.5	0.8	12.9	1.6	UK, Mexico, Korea, Japan, Taiwan, Singapore, Australia, Russia, Colombia, Chile
94	Woven Fab Of Syn Fil Yn, Incl Monofil 67 Dec Etc	26.5	167.4	17.4	3.1	Mexico, Dom Rep, El Salvador, Guatemala, Jamaica, Morocco, Belgium, Thailand, Hong Kong, Egypt
95	Parts & Access For Motor Vehicles (Head 8701-8705)	25.9	17.2	4.1	0.1	Mexico, Netherlands, China, Singapore, Thailand, Mauritania, Israel, Vietnam, Chad, Costa Rica
96	Steam Turbines & Other Vapor Turbines, Parts	25.3	-42.1	-41.1	6.8	Spain, Malaysia, Brazil, Mexico, El Salvador, Mozambique, Canada, Kuwait, Hungary, Korea
97	Ion-Exchangers Basd On Plastics, In Primary Forms	25.0	7,895.8	40.7	27.1	France, Canada, China, Australia, Korea, Taiwan, Denmark, S. Africa, Hong Kong, Indonesia
98	Articles Nesoi Of Unharded Vulcanized Rubber	24.5	117.5	24.2	1.9	Mexico, Germany, France, Singapore, Hungary, Austria, Ecuador, Trinidad, Venezuela, Italy
99	Fish, Fresh Or Chilled (No Fillets Or Other Meat)	24.3	-32.1	27.8	9.0	Canada, Japan, China, Taiwan, Thailand, Denmark, Russia, Australia, Netherlands, Georgia
100	Lifting, Handling, Loading & Unload Machines Nesoi	24.1	31.9	-14.0	2.5	Brazil, Ukraine, Kuwait, Saudi Arabia, Singapore, Guatemala, Vietnam, Nigeria, Jamaica, Portugal

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Massachusetts Top 5 HS Sectors by Commodity and Destinations

Electric Machinery, Etc; Sound Equipment; TV Equipment; Pts

Despite the heavy losses in the electric machinery sector overall in 2002, there were export success stories as well. The growth in shipments of electronic integrated circuits and micro assemblies was mentioned in the previous section. Another strong export performer has been microphones, loud speakers and sound amplifiers. Exports of this commodity increased a respectable 11.7%, or \$26.3 million in 2002 and have rocketed up 489.6% since 1998. Electric machinery exports

The declines in sector exports in 2002 were spread across a number of destination markets, including Canada, Japan, Germany, the UK, and Ireland. Again, there were exceptions to the general downward trend. Exports to Malaysia climbed 128.7%, or by \$227.2 million in 2002. Tiny Costa Rica advanced a stunning 592.2%, or \$260.2 million.

Optic, Photo, Etc, Medical or Surgical Instruments Etc

Within the instrumentation sector, medical related instrument exports tended to do better than exports of instruments with an industrial application. An exception in 2002, however, was medical, surgical, and dental instruments which fell 4.6%, or \$53.4 million. The sector's top loss commodity in 2002 was photographic still cameras, dropping 57.8%, or \$864 million.

Japan and the UK drove market losses this year by falling \$793 million (-13.9%) and \$58.5 million (or -18.3%), respectively. Increases to partially offset those losses occurred in the Netherlands, Singapore, Taiwan, France, and China.

Industrial Machinery, Including Computers

Industrial machinery, including computers, continued its downward slide in 2002. Exports fell 19.6% compared to a national average of -10.3%. More alarming, however, are the five year figures. From 1998-2002, Mass exports of industrial machinery declined a net 39.7%. US export figures for the same period also decreased, but only by 4.3%. Among the state's top five export industries, industrial machinery, including computers, is the only one that is not an "export industry of specialization." That is, the sector's percentage of total US exports (2.2%) is lower than the state's average share of US exports overall (2.4%). As noted above, top loss commodities within the sector are ADP machines and parts of computers and other office business machines. Also notable is the decline in the export of printing related equipment. Machines nesoi (not elsewhere specified or included) for typeset fell 36.4% in '98-'02 and printing machines, including ink jet machinery, were down 38.2% in the same period.

Shipments fell to seven of the sector's top 10 export destinations. The biggest declines occurred in Canada (-\$162.6 million), Japan (-\$120.4 million), and the United Kingdom (down -\$95.5 million).

Pharmaceutical Products

Two commodities accounted for the bulk of exports in the pharmaceutical sector. They were: medicaments nesoi in individual dosages *and* human blood, animal blood, antiserra, and vaccines. Most of the sector's other export commodities -- although selling at a low volume -- saw a drop in shipments last year.

Market destinations were also concentrated. The UK and the Netherlands took approximately 64% of all pharmaceutical imports from Massachusetts in 2002. The Netherlands made a huge leap in market size last year, growing from about a \$5 million export market in 2001 to a \$236.2 million market in 2002.

Plastics and Articles Thereof

Plastics are a mature Massachusetts industry that enjoyed solid, if not spectacular, export growth. State shipments were up 18.2% in 2002 compared to a US average of 1.3%. In '98-'02, Mass plastics' exports advanced 45.3% while the US overall rose only 20%. Although the export is spread over a diverse base of products, two commodities accounted for most of the export growth in 2002. They were polyesters, epoxides & polyesters *and* polymers of styrene.

Canada and Mexico are the biggest markets for Massachusetts plastics with a healthy volume of shipments also going to a number of other markets in Europe and Asia. The highest growth markets in 2002 were Canada, which advanced \$112.1 million (76.7%), and Taiwan, which climbed \$23.4 million (149.4%).

**Table 3 Massachusetts Exports by 2-Digit HS by Leading Commodity Components
Top 12 HS Chapters by Top 10 Commodities
Dollar Value of Shipments in Millions**

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
		2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
HS	TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	4,724.1	-738.0	-13.5	-9.9	810.4	20.7	1.8	4.3
8542	Electronic Integrated Circuits & Microassembl, Pts	1,862.8	332.5	21.7	-5.4	539.6	40.8	12.0	4.9
8517	Electric Apparatus For Line Telephony Etc, Parts	488.7	-737.3	-60.1	-21.2	-301.4	-38.2	3.4	5.7
8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	288.3	-101.6	-26.1	25.9	52.4	22.2	39.4	11.1
8518	Microphones; Loudspeakers; Sound Amplifier Etc, Pt	251.9	26.3	11.7	-21.5	209.2	489.6	26.6	15.4
8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	235.8	-47.2	-16.7	-14.0	108.6	85.4	15.5	5.9
8524	Records, Tapes & Other Recorded Sound Media Etc	198.4	-20.1	-9.2	-4.5	-96.1	-32.6	-14.0	6.2
8529	Parts For Television, Radio And Radar Apparatus	189.4	4.0	2.1	-7.4	88.2	87.1	-4.7	4.0
8536	Electrical Apparatus For Switching Etc, Nov 1000 V	149.4	-32.8	-18.0	-9.4	-55.6	-27.1	12.5	2.9
8526	Radar Apparatus, Radio Navig Aid & Remote Cont App	135.8	-13.6	-9.1	-2.4	128.9	1,865.4	9.6	11.5
8504	Elec Trans, Static Conv & Induct, Adp Pwr Supp, Pt	122.4	-51.4	-29.6	-24.8	-23.5	-16.1	-8.4	4.3
90	Optic, Photo Etc, Medic Or Surgical Instrmnts Etc	3,214.7	-78.7	-2.4	-6.9	688.4	27.3	15.0	7.8
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	1,109.5	-53.4	-4.6	-1.1	194.9	21.3	22.6	11.0
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	636.3	48.6	8.3	-17.4	155.4	32.3	-0.8	14.1
9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	466.9	64.6	16.0	-5.8	186.1	66.3	16.6	13.9
9032	Automatic Regulating Or Control Instruments; Parts	166.5	-15.1	-8.3	-5.1	59.1	55.0	8.5	5.7
9022	X-Ray Etc Apparatus; Tubes, Panels, Screen Etc, Pt	159.8	45.0	39.2	3.4	86.1	116.6	33.7	8.0
9021	Orthopedic Appl; Artif Body Pts; Hear Aid; Pts Etc	154.3	21.1	15.8	9.0	66.5	75.8	68.9	4.8
9026	Inst Etc Measure Or Check Flow, Level Etc, Pts Etc	94.4	-14.4	-13.2	-5.2	-52.7	-35.8	14.2	7.5
9031	Machines, Nesoi In Chapter 90; Profile Project, Pt	80.1	-52.1	-39.4	-7.6	-14.0	-14.8	21.1	2.9
9006	Photographic Still Cameras, Flash Apparatus Etc	63.1	-86.4	-57.8	-7.2	-30.3	-32.4	9.4	12.1
9013	Liquid Crystal Devices Nesoi; Lasers; Opt Appl; Pt	44.5	-7.1	-13.8	-13.2	20.2	83.0	62.8	3.0
84	Industrial Machinery, Including Computers	2,858.4	-696.5	-19.6	-10.3	-1,884.5	-39.7	-4.3	2.2
8471	Automatic Data Process Machines; Magn Reader Etc	676.5	-308.0	-31.3	-20.4	-888.6	-56.8	-15.6	3.1
8473	Parts Etc For Typewriters & Other Office Machines	446.3	-311.3	-41.1	-16.6	-853.9	-65.7	-14.7	2.7
8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	364.9	43.5	13.5	-6.6	-150.1	-29.1	20.0	2.2
8421	Centrifuges; Filter Etc Mach For Liq Or Gases; Pts	238.5	-22.1	-8.5	-4.9	69.7	41.3	23.5	6.3
8479	Machines Etc Having Individual Functions Nesoi, Pt	184.7	-86.1	-31.8	-21.5	10.8	6.2	-4.7	2.9
8442	Mach Etc Nesoi For Typeset, Making Pr Plates Etc	86.0	-12.2	-12.5	-12.9	-49.2	-36.4	-23.8	27.7
8414	Air Or Vac Pumps, Compr & Fans; Hoods & Fans; Pts	71.3	-3.7	-5.0	-8.4	22.5	46.1	5.4	2.1
8477	Machinery For Working Rubber & Plast Etc Nesoi, Pt	67.9	8.2	13.8	-12.5	6.6	10.7	-13.6	7.0
8443	Print Mach Incl Ink-Jet Mach Ancil T Prnt Pt Nesoi	60.2	-4.1	-6.4	-16.6	-37.2	-38.2	-24.3	7.2
8419	Machinery Etc For Temp Chang Treat Mat; W Heat, Pt	59.2	6.3	12.0	-9.0	18.7	46.1	-4.6	3.4
30	Pharmaceutical Products	829.1	333.4	67.3	4.5	499.5	151.5	73.1	6.3
3004	Medicaments Nesoi, Mixed Or Not, In Dosage Etc Fm	436.1	91.8	26.6	-1.4	262.5	151.2	116.0	5.2
3002	Human Blood; Animal Blood; Antisera, Vaccines Etc	355.1	249.9	237.7	17.7	258.1	266.2	37.5	12.9
3005	Bandages Etc Coated Etc Or In Retail Medic Etc Fm	18.1	-1.2	-6.3	0.9	11.3	169.0	42.8	4.7
3006	Pharmaceutical Goods In Note 4 To Chapter 30	13.7	1.1	8.6	4.6	3.6	35.3	26.0	2.1
3003	Medicaments Nesoi Of Mixtures, Not Dosage Etc Form	5.1	-7.1	-58.2	51.0	0.7	17.0	16.1	0.8
3001	Glands Etc Dry & Ext; Heparin; Hum Etc Subst Nesoi	1.2	-1.0	-47.2	11.6	-36.8	-96.9	-31.9	0.6

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 3 (Continued)
Massachusetts Exports by 2-Digit HS by Leading Commodity Components
Top 12 HS Chapters by Top 10 Commodities

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
		2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
HS	TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
39	Plastics And Articles Thereof	805.2	124.1	18.2	1.3	250.9	45.3	20.0	3.0
3926	Articles Of Plastics (Inc Polymers & Resins) Nesoi	148.2	10.0	7.2	-12.0	58.9	65.9	17.0	4.3
3907	Polyethers, Expoixides & Polyesters, Primary Forms	135.5	71.4	111.2	-2.1	90.5	201.2	16.3	4.7
3920	Plates, Sheets, Film Etc No Ad, Non-Cel Etc, Plast	123.2	0.3	0.2	-1.1	-42.8	-25.8	2.9	4.5
3903	Polymers Of Styrene, In Primary Forms	75.7	51.8	217.3	3.7	58.3	334.9	-0.1	9.6
3921	Plates, Sheets, Film, Foil & Strip Nesoi, Plastics	58.9	0.3	0.6	3.5	31.2	112.8	21.9	6.1
3919	Self-Adhesive Plates, Sheets, Film Etc Of Plastics	44.8	2.2	5.2	15.9	-0.1	-0.2	22.2	4.0
3909	Amino-Resins, Phenolics & Polyurethanes, Prim Form	33.3	-0.2	-0.5	14.4	16.2	94.8	29.0	4.3
3914	Ion-Exchangers Basd On Plastics, In Primary Forms	25.0	17.0	211.0	-33.4	24.7	7,895.8	40.7	27.1
3906	Acrylic Polymers In Primary Forms	24.0	0.5	2.3	5.2	10.1	72.5	9.7	2.8
3923	Containers (Boxes, Bags Etc), Closurers Etc, Plast	23.1	-1.2	-4.9	10.0	1.0	4.6	51.9	0.8
29	Organic Chemicals	465.1	185.4	66.3	0.6	353.7	317.3	15.5	2.4
2937	Hormones; Derivatives & Steriods Used As Hormones	419.8	181.2	75.9	21.8	336.7	405.2	83.5	49.1
2931	Organo-Inorganic Compounds Nesoi	18.5	3.1	20.3	-46.0	17.0	1,089.9	-44.0	4.1
2935	Sulfonamides	4.4	2.3	108.6	61.6	4.4	149,236.7	233.0	1.2
2933	Heterocyclic Comp, Nit Hetero-Atoms Only	4.0	1.0	32.9	-8.8	0.8	23.9	-26.8	0.3
2934	Nucleic Acids & Salts, Heterocyclic Comp Nesoi	2.7	1.7	155.5	-20.9	2.5	1,088.0	-43.0	1.1
2921	Amine-Function Compounds	1.9	-1.7	-47.5	-2.2	-0.5	-20.4	-11.7	0.3
2916	Unsat Acyclic & Cyclic Monocarbox Acid & Anhyd Etc	1.5	0.8	111.4	7.5	1.1	295.0	14.5	0.2
2922	Oxygen-Function Amino-Compounds	1.5	0.9	164.9	-4.1	-7.4	-83.4	19.6	0.2
2905	Acyclic Alcohols & Halogenat, Sulfonatd Etc Derivs	0.9	-0.6	-41.1	11.8	0.1	20.2	19.9	0.1
2936	Provitamins And Vitamins & Derivatives & Intermixs	0.8	-1.4	-63.4	21.8	0.0	-3.6	56.6	0.1
48	Paper & Paperboard & Articles (Inc Papr Pulp Artl)	326.0	-3.5	-1.1	-5.1	26.5	8.8	-1.1	3.2
4811	Paper, Paperboard, Wad Etc, Coat Etc Nesoi, RI Etc	93.2	12.2	15.1	2.5	22.3	31.5	19.9	7.2
4805	Paper & Paperboard, Uncoat, Nesoi, Rolls Or Sheets	60.3	1.6	2.8	-17.2	3.3	5.8	-18.5	16.3
4802	Paper, Uncoat, For Writing Etc, Rolls; Hndmd Paper	44.6	-8.6	-16.1	-8.2	17.9	66.7	6.5	7.4
4823	Paper, Paperboard, Cellul Wad To Size & Arts Nesoi	28.8	6.7	30.6	-25.6	12.2	73.7	-22.8	4.5
4819	Cartons Etc Paper; Office Box Files Etc, Paper Etc	19.6	-1.0	-4.7	-8.1	-11.2	-36.3	2.8	1.4
4810	Paper & Paperboard, Coated With Kaolin Etc, RI Etc	16.4	3.4	26.3	5.0	-6.7	-28.9	-0.5	1.0
4804	Kraft Paper & Paperboard, Uncoat Nesoi, Rolls Etc	16.1	-6.4	-28.5	-3.1	-4.7	-22.4	-19.8	1.0
4820	Registers, Notebooks, Binders, Bus Forms Etc, Papr	8.9	1.1	13.7	-13.5	-0.8	-8.5	-26.7	5.6
4821	Labels Of Paper Or Paperboard, Printed Or Not	8.4	-3.7	-30.6	-5.9	0.7	9.5	20.7	1.9
4808	Paper And Paperboard, Corrugated Etc, Rolls Etc	6.8	0.4	5.7	61.3	0.8	14.1	73.6	3.1
82	Tools, Cutlery Etc. Of Base Metal & Parts Thereof	272.6	-38.0	-12.2	-2.4	24.0	9.6	4.2	9.7
8212	Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	219.1	-11.7	-5.1	2.1	23.3	11.9	13.5	63.8
8202	Handsaws & Met Pts; Saw Blades; Base Mtl Saw Parts	32.3	-15.8	-32.8	-11.2	4.2	15.1	22.9	18.9
8207	Interchange Tools For Hand- Or Machine-Tools, Bmpt	12.3	-2.3	-15.9	-2.3	0.8	7.0	-2.2	1.0
8205	Handtools Nesoi; Blow Torches Etc; Anvils Etc	2.5	-4.0	-61.4	-0.7	-3.4	-57.0	6.7	0.7
8208	Knives & Blades For Machines & Appliances, B Mt Pt	2.2	-0.6	-20.7	-3.1	-1.1	-34.0	-6.0	1.7
8215	Tableware Etc Of Base Metal, & Base Metal Parts	0.8	0.2	35.0	9.9	0.5	217.6	50.8	2.5
8203	Files, Rasps, Pliers, Metalcut Shears Etc, B Mt Pt	0.7	-1.1	-60.4	-11.3	0.0	-1.1	0.7	0.6
8209	Plates, Sticks Tips Etc F Tools Unmntd Of Cermets	0.7	0.2	39.3	1.6	0.1	18.9	27.3	0.4
8204	Hand-Operated Spanners & Wrenches Etc, B Met Parts	0.4	-0.1	-14.1	-11.8	-0.4	-50.7	1.1	0.4
8211	Knives With Blades & Blades For Knives Nesoi, Bmpt	0.4	0.0	5.4	-1.6	-0.5	-56.0	-2.9	1.0

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 3 (Continued)
Massachusetts Exports by 2-Digit HS by Leading Commodity Components
Top 12 HS Chapters by Top 10 Commodities

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
		2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
HS	TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
3	Fish, Crustaceans & Aquatic Invertebrates	238.1	19.3	8.8	-2.9	34.7	17.1	38.6	8.6
306	Crustcns Lve Frsh Etc, Ckd Etc.; Flrs Mls H Cnsump	125.4	21.3	20.5	8.4	51.4	69.5	19.1	26.3
303	Fish, Frozen (No Fish Fillets Or Other Fish Meat)	34.4	-5.2	-13.1	-10.2	-1.8	-5.0	51.1	3.2
307	Molluscs & Aqua Invert Nesoi, Lve Etc.; Flours Etc	28.3	5.1	21.8	-9.9	-3.8	-11.9	5.5	14.5
302	Fish, Fresh Or Chilled (No Fillets Or Other Meat)	24.3	-1.7	-6.5	12.0	-11.5	-32.1	27.8	9.0
304	Fish Fillets & Oth Fish Meat, Fresh, Chill Or Froz	23.2	-0.8	-3.2	4.7	-0.8	-3.4	64.9	3.4
305	Fish, Dried, Salted Etc, Smoked Etc; Ed Fish Meal	2.4	0.7	40.6	-37.3	1.5	160.9	-1.7	4.0
301	Fish, Live	0.1	-0.2	-76.7	-3.2	-0.2	-81.5	-5.3	0.2
71	Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	228.8	100.3	78.1	-7.6	24.2	11.9	13.0	1.7
7112	Waste & Scrap Of Prec Metal Or Other Cont Prec Mtl	83.1	46.8	129.0	-0.8	72.6	692.5	57.0	6.7
7108	Gold (Incl Plat Plated), Unwr, Semimfr Or Powder	39.1	22.4	135.1	-33.6	-4.6	-10.6	-41.8	1.3
7102	Diamonds, Worked Or Not, Not Mounted Or Set	31.4	11.1	55.1	9.4	22.5	253.8	67.9	0.7
7113	Articles Of Jewelry & Pts, Of Prec Metal Or Clad	30.8	5.2	20.2	6.4	12.4	67.2	109.5	1.4
7110	Platinum, Unwrought, Semimfr Forms Or In Powder Fm	12.9	8.2	176.1	-13.2	10.9	552.4	49.8	1.0
7106	Silver (Incl Prec Plated), Unwr, Semimfr Or Powder	7.3	-3.9	-34.5	16.4	-96.0	-92.9	-61.4	3.1
7118	Coin	6.2	5.0	409.3	61.8	4.9	375.2	-14.3	15.8
7117	Imitation Jewelry	6.1	2.2	54.6	-4.8	-3.9	-39.0	-4.4	4.6
7107	Base Mtls Cld W Silvr Nt Frth Wkd Thn Smmnfctrd	4.7	4.1	747.0	-2.9	4.6	3,404.1	60.1	11.7
7104	Synth Prec Or Semiprec Stones Etc, Not Strung Etc	1.7	0.7	64.8	-6.5	1.1	171.3	-20.9	4.0
93	Arms And Ammunition; Parts And Accessories Thereo	209.1	161.4	338.5	-3.3	114.9	122.0	-17.1	10.0
9306	Bombs, Grenades Etc; Cartridges Etc And Parts	188.7	154.0	443.0	1.0	104.1	122.9	-5.1	12.3
9302	Revolvers & Pistols, Designed To Fire Live Ammo	10.2	1.1	12.7	-3.5	3.0	40.9	-22.6	43.7
9305	Parts & Accessories Of Arms Of Head 9301 To 9304	8.5	6.5	311.5	-53.5	7.6	817.0	-28.8	5.9
9303	Sport Shotguns & Rifles Etc, Very Pistols Etc	0.6	0.0	-0.2	0.2	0.0	1.2	1.4	1.3
9301	Military Weapons Ex Revolvers Pistols Lances Etc	0.5	-0.5	-52.0	28.5	0.0	4.5	-48.2	0.2
9307	Swords, Cutlasses, Bayonets, & Siml Arms & Parts	0.5	0.4	1,465.5	23.6	0.4	1,296.4	46.5	15.2
9304	Arms Nesoi, Other Than Side Arms And Similar Arms	0.0	-0.1	-77.9	73.7	-0.2	-84.0	45.3	0.2
38	Miscellaneous Chemical Products	185.5	4.4	2.4	-0.2	51.8	38.8	11.2	1.8
3822	Composite Diagnostic/Lab Reagents, Exc Pharmaceut	120.8	2.0	1.7	3.9	52.4	76.6	42.7	4.4
3818	Chem Elem Doped, Used In Electron, Discs Wafers Et	23.5	4.5	23.5	11.9	18.6	378.7	24.8	4.0
3824	Binders For Found Molds; Chemical Prod Etc Nesoi	21.2	0.4	1.9	-14.7	0.8	3.8	8.6	1.6
3811	Antiknock Preps & Other Additives For Mineral Oils	3.8	-0.1	-3.5	6.6	0.7	24.2	3.9	0.3
3823	Ind Monocarb Fat Acids; Acid Oil, Ref; Ind Fat Alc	3.7	-0.1	-3.0	19.9	-9.4	-71.4	4.0	2.2
3801	Artificial Graphite; Colloidal Graphite & Prep Etc	3.2	-0.3	-8.5	-1.5	1.7	116.6	-6.1	2.4
3809	Finishing Agents Etc For Textiles, Paper Etc Nesoi	2.5	-1.7	-40.2	7.4	0.2	9.9	4.7	1.0
3821	Prepared Culture Media For Devel Of Microorganisms	2.3	-0.4	-14.2	20.3	0.5	26.5	27.3	1.2
3808	Insecticides, Rodenticides; Fungicides Etc, Retail	1.1	0.9	406.3	0.0	-7.1	-86.8	-11.4	0.1
3810	Pickling Preps For Metal; Soldering Etc Powder Etc	0.8	0.0	-2.8	-27.6	-0.5	-37.0	-33.8	1.0

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 4
Massachusetts Exports by 2-Digit HS by Leading Destination Countries
Top 12 HS Chapters by Top 10 Destinations

		MA (\$mil)	MA 00-02	MA 00-02	US 00-02	MA 98-02	MA 98-02	US 98-02	MA AS %
		2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
HS	TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	4,724.1	-738.0	-13.5	-9.9	810.4	20.7	1.8	4.3
	Canada	514.3	-111.1	-17.8	-14.7	-219.4	-29.9	-15.1	3.0
	Philippines	425.8	91.8	27.5	-0.7	224.4	111.4	25.6	8.7
	Malaysia	403.7	227.2	128.7	18.8	312.7	343.7	29.5	7.1
	Japan	364.0	-221.4	-37.8	-23.2	-66.2	-15.4	-20.8	5.7
	Germany	350.6	-186.8	-34.8	-10.4	108.7	44.9	26.8	9.4
	United Kingdom	327.3	-209.4	-39.0	-25.5	-31.0	-8.7	-21.4	8.2
	Costa Rica	304.2	260.2	592.2	122.1	299.5	6,441.9	264.8	29.5
	China (Taiwan)	165.9	-50.4	-23.3	13.5	-86.8	-34.3	32.5	2.7
	Ireland	159.9	-224.2	-58.4	-25.7	70.2	78.3	13.1	12.8
	Singapore	159.6	32.4	25.5	-13.5	37.8	31.1	-26.5	4.2
90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,214.7	-78.7	-2.4	-6.9	688.4	27.3	15.0	7.8
	Japan	492.0	-79.3	-13.9	-10.9	46.1	10.3	10.0	9.1
	Netherlands	399.2	86.8	27.8	4.3	165.4	70.7	13.2	17.8
	Germany	300.7	-8.3	-2.7	-11.4	66.7	28.5	15.7	9.3
	United Kingdom	260.9	-58.5	-18.3	-15.6	9.3	3.7	5.3	10.4
	Canada	213.7	1.3	0.6	-9.2	34.4	19.2	4.8	3.9
	Singapore	193.6	60.5	45.4	10.2	87.7	82.8	25.6	17.2
	China (Taiwan)	161.3	38.8	31.6	14.2	46.9	41.0	40.5	10.9
	France	151.9	29.1	23.7	-10.5	51.0	50.5	1.8	8.1
	Italy	88.9	-1.7	-1.9	-8.6	1.1	1.3	15.8	9.4
	China (Mainland)	82.3	17.8	27.7	0.9	48.1	140.3	85.2	6.5
84	Industrial Machinery, Including Computers	2,858.4	-696.5	-19.6	-10.3	-1,884.5	-39.7	-4.3	2.2
	Canada	615.0	-162.6	-20.9	-5.0	-488.9	-44.3	-3.6	2.0
	Japan	317.7	-120.4	-27.5	-21.4	-284.7	-47.3	-10.1	4.2
	United Kingdom	293.8	-95.5	-24.5	-19.0	-199.1	-40.4	-16.1	3.6
	Germany	183.7	-51.5	-21.9	-21.2	-199.4	-52.0	-7.1	3.0
	France	143.4	-60.8	-29.8	-11.4	-37.2	-20.6	-5.3	2.6
	Ireland	142.2	3.4	2.5	-17.3	-23.0	-13.9	-23.8	8.9
	Korea, Republic Of	110.1	19.1	21.0	-4.4	41.0	59.3	48.6	3.1
	Mexico	97.5	4.1	4.4	1.7	-5.4	-5.2	32.5	0.7
	China (Taiwan)	82.5	-5.3	-6.0	-8.5	-2.7	-3.2	2.5	2.5
	China (Mainland)	76.2	-2.5	-3.2	1.0	-6.8	-8.2	51.2	1.9
30	Pharmaceutical Products	829.1	333.4	67.3	4.5	499.5	151.5	73.1	6.3
	United Kingdom	295.3	88.1	42.5	-26.8	185.2	168.1	201.6	16.6
	Netherlands	236.2	231.7	5,149.3	66.3	165.9	235.7	101.4	22.1
	Japan	54.1	1.1	2.1	6.8	29.9	123.5	59.0	5.9
	Germany	36.0	-2.3	-6.1	-20.2	8.0	28.6	-13.0	6.6
	Brazil	35.7	16.4	84.7	21.1	26.1	272.3	27.6	13.8
	France	30.4	12.0	65.2	-5.5	13.6	80.5	88.2	4.9
	Canada	23.5	2.3	10.9	8.9	7.2	44.2	59.4	1.1
	Ireland	20.0	-19.5	-49.4	5.0	19.8	10,847.7	248.7	4.3
	Israel	15.4	1.3	9.5	39.8	6.7	77.4	49.7	20.4
	Australia	11.3	3.0	36.4	32.4	4.3	60.9	70.6	3.0

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 4 (Continued)
Massachusetts Exports by 2-Digit HS by Leading Destination Countries
Top 12 HS Chapters by Top 10 Destinations

	MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
HS TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
39 Plastics And Articles Thereof	805.2	124.1	18.2	1.3	250.9	45.3	20.0	3.0
Canada	258.1	112.1	76.7	4.6	123.0	91.1	19.7	3.6
Mexico	108.2	5.6	5.4	1.0	28.4	35.5	34.5	1.6
United Kingdom	84.8	10.1	13.5	-4.5	27.4	47.8	-2.5	11.1
Belgium	53.1	2.7	5.3	2.3	17.4	48.7	24.1	4.4
China (Taiwan)	39.1	23.4	149.4	7.3	33.3	575.8	28.1	6.1
Japan	37.9	-3.8	-9.1	-4.7	-7.1	-15.7	10.2	3.2
Germany	31.3	1.0	3.2	1.4	11.2	55.4	-4.7	5.1
Singapore	27.2	-1.6	-5.6	10.2	14.8	119.9	25.3	4.5
Hong Kong	26.5	-3.4	-11.3	4.7	10.3	64.0	19.1	3.6
Netherlands	25.5	-5.9	-18.7	2.4	-28.2	-52.5	-9.7	3.7
29 Organic Chemicals	465.1	185.4	66.3	0.6	353.7	317.3	15.5	2.4
France	328.6	93.6	39.8	21.7	269.1	452.2	106.7	19.9
Germany	88.6	85.5	2,769.9	3.6	88.0	16,369.6	55.8	16.6
Belgium	13.3	8.8	193.4	11.6	12.5	1,412.2	10.7	0.9
Japan	8.3	-1.0	-11.0	-10.0	5.7	215.3	-1.1	0.7
China (Taiwan)	5.8	0.2	2.7	20.5	4.8	499.7	1.0	0.7
United Kingdom	4.6	-0.3	-6.1	8.6	2.7	143.5	40.9	0.5
Canada	3.6	-1.7	-32.0	-5.2	-1.1	-22.9	4.5	0.2
Netherlands	2.6	-0.7	-22.5	-4.4	1.7	201.5	-13.8	0.2
Mexico	1.4	0.2	15.2	3.6	-0.9	-39.0	35.8	0.1
Korea, Republic Of	1.0	0.1	15.2	24.6	0.9	1,460.2	111.4	0.1
48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	326.0	-3.5	-1.1	-5.1	26.5	8.8	-1.1	3.2
Canada	161.7	9.1	6.0	-0.2	13.7	9.3	21.6	4.3
Netherlands	32.2	-11.6	-26.4	-10.1	-3.0	-8.5	-23.7	15.7
United Kingdom	19.0	9.8	106.5	-20.4	1.4	8.2	-31.1	8.0
Hong Kong	18.9	-0.2	-1.2	-12.4	8.9	88.6	-43.7	9.6
Japan	12.1	-2.6	-17.9	-7.2	2.4	24.3	-4.5	1.9
Mexico	11.1	0.9	8.6	-10.6	-7.2	-39.4	11.5	0.5
China (Mainland)	10.3	-4.0	-28.0	22.2	1.4	15.5	19.7	2.6
Germany	6.4	-3.7	-37.0	-36.3	-0.4	-6.3	-45.4	5.3
Korea, Republic Of	5.5	2.6	89.9	12.2	4.0	264.9	43.7	3.3
Indonesia	5.1	3.9	309.4	9.9	4.4	642.4	19.7	9.2
82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	272.6	-38.0	-12.2	-2.4	24.0	9.6	4.2	9.7
Canada	92.4	10.7	13.1	4.6	14.0	17.9	4.7	9.3
United Kingdom	85.9	-13.4	-13.5	-10.8	22.2	34.8	-9.4	36.7
Australia	14.6	0.0	0.0	5.8	6.7	84.3	14.2	19.0
Malaysia	13.0	4.0	45.1	59.7	10.2	360.7	113.4	42.1
Japan	12.5	-2.4	-15.9	-3.8	4.7	61.2	5.3	11.7
Mexico	11.3	0.6	5.1	-12.0	4.9	75.2	6.6	4.0
Belgium	10.8	-15.2	-58.4	-24.3	1.5	15.8	18.8	21.8
Poland	3.2	2.6	450.2	101.2	1.1	51.1	-0.7	57.1
Korea, Republic Of	3.2	-0.1	-2.6	3.2	3.1	2,025.1	139.9	8.1
Germany	3.2	0.3	9.6	-17.5	-19.2	-85.8	-2.3	2.2

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 4 (Continued)
Massachusetts Exports by 2-Digit HS by Leading Destination Countries
Top 12 HS Chapters by Top 10 Destinations

		MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
		2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
HS	TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
3	Fish, Crustaceans & Aquatic Invertebrates	238.1	19.3	8.8	-2.9	34.7	17.1	38.6	8.6
	Canada	50.5	-0.2	-0.4	1.4	1.0	2.0	32.2	9.0
	France	38.7	13.1	51.3	22.0	1.6	4.2	22.9	40.7
	Italy	30.4	4.4	17.0	2.8	5.6	22.4	15.5	65.6
	Spain	30.4	10.5	53.1	-1.0	19.6	181.0	40.3	44.0
	Korea, Republic Of	26.2	1.7	7.1	-0.9	20.4	350.4	237.8	8.5
	Japan	24.2	-7.7	-24.2	-4.6	-17.9	-42.6	15.7	2.3
	Belgium	7.0	1.2	20.9	1.1	2.8	66.7	49.0	51.4
	Germany	5.1	-1.8	-26.7	-4.6	-2.7	-34.9	199.2	4.1
	China (Mainland)	4.7	2.0	75.0	2.8	4.1	605.6	70.4	4.1
	United Kingdom	4.6	0.6	14.2	-33.4	-1.3	-21.9	34.4	17.6
71	Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	228.8	100.3	78.1	-7.6	24.2	11.9	13.0	1.7
	Canada	69.3	33.0	91.0	15.3	41.5	149.9	-0.8	6.3
	Switzerland	64.5	45.9	246.8	-29.9	60.1	1,356.6	39.6	2.4
	Italy	24.1	1.7	7.7	-13.5	20.8	620.5	21.5	7.0
	United Kingdom	13.2	3.6	38.0	-11.5	-85.4	-86.6	-47.7	0.8
	Hong Kong	9.9	2.8	38.7	-0.4	-14.6	-59.6	57.0	1.2
	Japan	8.5	3.7	78.1	-25.0	5.2	155.8	30.8	1.3
	Belgium	7.7	4.8	170.1	4.1	-0.9	-10.9	34.7	0.6
	Mexico	6.0	2.2	57.7	2.1	5.0	473.4	41.6	1.2
	Israel	4.4	-0.3	-6.9	18.7	2.5	126.6	75.0	0.2
	China (Taiwan)	4.0	1.0	34.9	-2.5	3.8	1,377.4	-30.9	5.7
93	Arms And Ammunition; Parts And Accessories Thereo	209.1	161.4	338.5	-3.3	114.9	122.0	-17.1	10.0
	Greece	119.1	117.3	6,545.9	92.5	119.1	NA	140.8	85.3
	Japan	65.9	52.7	401.1	-3.6	26.5	67.4	-20.2	19.6
	Germany	6.7	-8.9	-57.1	-50.6	2.7	68.9	95.1	6.4
	Netherlands	5.6	1.4	34.1	108.6	5.5	3,521.0	58.9	10.5
	Belgium	4.8	1.3	35.4	36.2	2.3	91.3	-7.1	24.4
	Canada	2.3	-0.2	-8.1	-15.4	-3.7	-61.2	-43.4	2.6
	Thailand	0.8	-0.1	-8.5	-40.8	0.4	73.2	-84.9	17.3
	Korea, Republic Of	0.7	0.0	6.7	90.2	0.7	2,621.3	36.7	0.2
	Denmark	0.6	0.6	5,177.1	92.6	0.4	230.7	-60.8	5.5
	Hong Kong	0.4	0.3	172.7	-8.8	0.4	2,682.9	-67.2	42.9
38	Miscellaneous Chemical Products	185.5	4.4	2.4	-0.2	51.8	38.8	11.2	1.8
	Japan	33.5	7.3	27.8	-4.4	8.6	34.6	15.2	3.3
	Canada	24.0	-1.8	-7.0	0.4	-6.5	-21.3	3.2	1.2
	France	22.4	-0.7	-3.1	10.1	7.3	48.6	-6.8	5.4
	Germany	20.7	1.2	6.2	-0.2	1.3	6.6	-13.0	3.5
	United Kingdom	13.0	0.1	0.7	-3.0	5.7	78.1	86.2	1.9
	Italy	8.4	0.9	11.6	-3.2	6.6	368.1	-21.2	5.7
	Netherlands	7.9	2.2	38.6	6.5	6.6	521.1	32.1	1.6
	Hong Kong	6.7	1.9	40.0	-43.8	3.6	113.6	-15.1	6.9
	Mexico	5.0	-0.6	-11.1	3.5	-0.4	-7.5	5.2	0.7
	Belgium	5.0	0.9	22.9	5.3	3.1	157.9	1.9	1.1

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

IV. MAJOR DESTINATIONS FOR MASSACHUSETTS EXPORTS

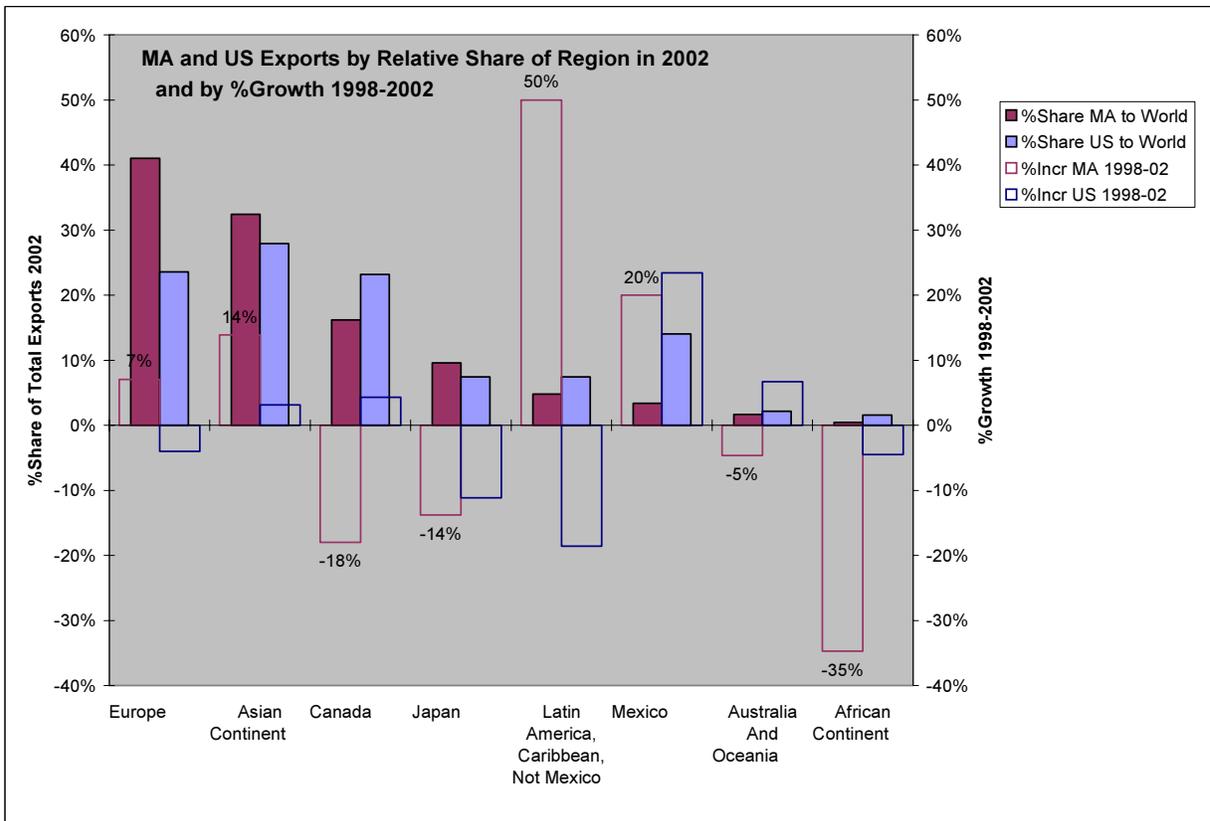
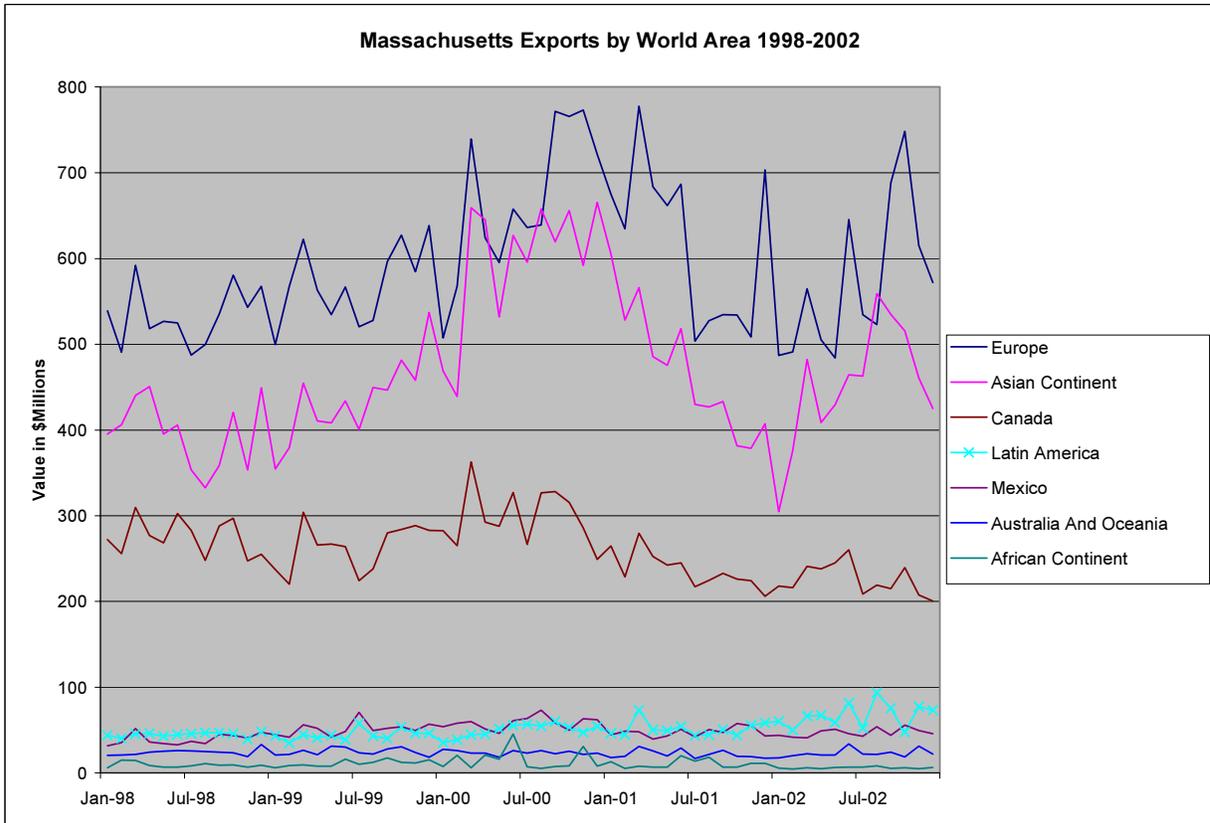


Table 5
Massachusetts Exports by World Region of Destination
Dollar Value of Shipments in Millions

	MA (\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
TOTAL ALL COUNTRIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
North America	3,274.4	-141.1	-4.1	-2.6	-500.3	-13.3	10.8	1.3
Canada	2,709.9	-134.6	-4.7	-1.8	-593.7	-18.0	4.3	1.7
Mexico	564.4	-6.5	-1.1	-3.9	94.0	20.0	23.4	0.6
Latin America, Caribbean, Not Mexico	803.8	189.2	30.8	-11.6	267.9	50.0	-18.6	1.6
South America	363.0	-83.2	-18.6	-20.6	-37.5	-9.4	-31.4	1.2
Central America	371.1	274.2	283.3	8.1	306.5	474.8	10.7	3.3
Caribbean	69.7	-1.8	-2.6	-0.3	-1.1	-1.5	4.0	0.6
Europe	6,857.8	-572.8	-7.7	-10.1	452.3	7.1	-4.0	4.2
Western Europe	6,730.8	-580.2	-7.9	-10.3	435.1	6.9	-3.6	4.3
European Union	6,469.2	-637.3	-9.0	-9.7	451.8	7.5	-3.8	4.5
Eastern Europe	127.0	7.4	6.2	-3.7	17.2	15.6	-11.7	1.9
Former Soviet Republics	57.8	10.9	23.3	0.2	14.8	34.5	-17.1	1.4
Asian Continent	5,422.8	-213.3	-3.8	-2.9	661.8	13.9	3.1	2.8
Japan	1,598.7	-365.4	-18.6	-10.8	-255.0	-13.8	-11.1	3.1
Asia-Nics	1,877.8	-44.3	-2.3	-3.2	237.3	14.5	10.3	2.7
Asean	1,646.7	335.8	25.6	-4.6	635.2	62.8	6.0	4.0
Asia Near East	309.0	-86.5	-21.9	-1.9	15.8	5.4	-19.8	1.6
Asia-South	109.7	3.2	3.0	10.7	23.5	27.3	11.1	2.1
African Continent	73.1	-56.3	-43.5	-13.8	-38.9	-34.7	-4.5	0.7
Sub-Saharan Africa	56.1	-18.6	-24.9	-13.5	-12.8	-18.6	-10.0	0.9
Australia And Oceania	275.7	11.7	4.4	13.2	-13.5	-4.7	6.7	1.8

Exports by World Region of Destination

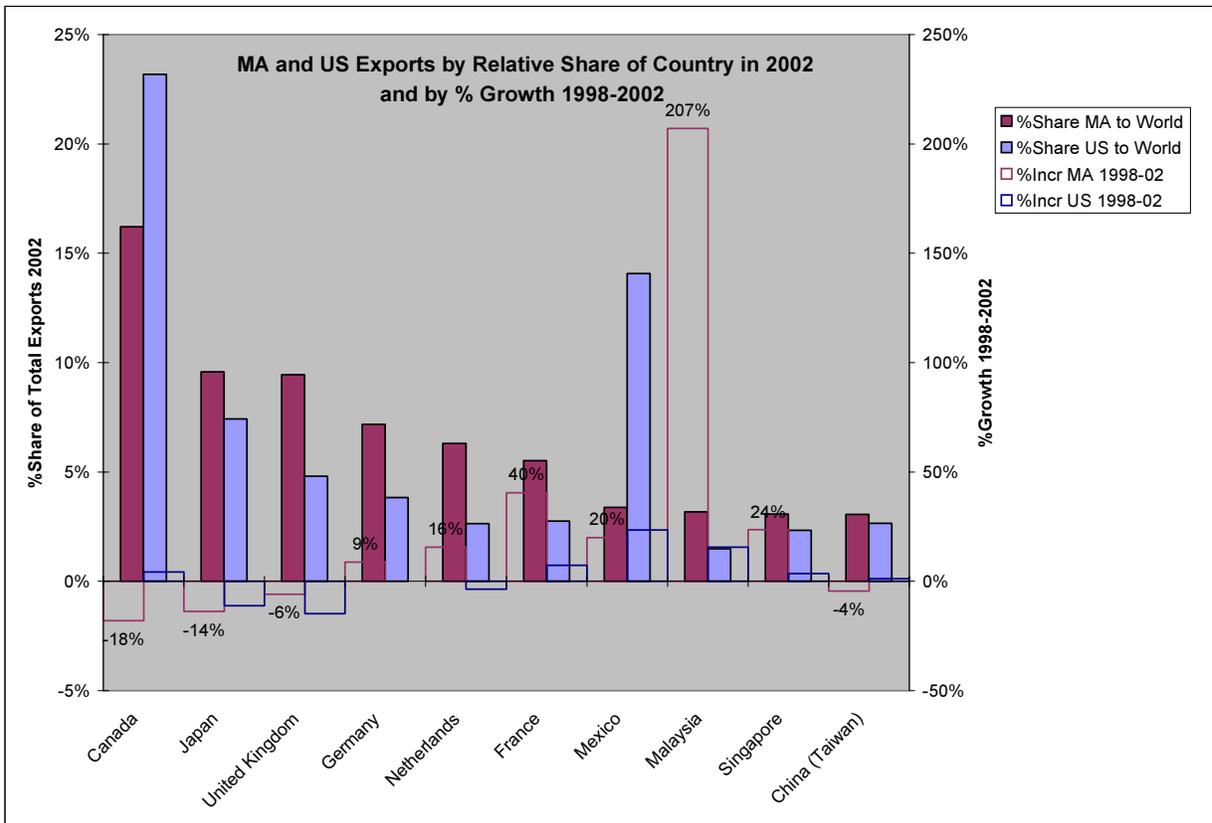
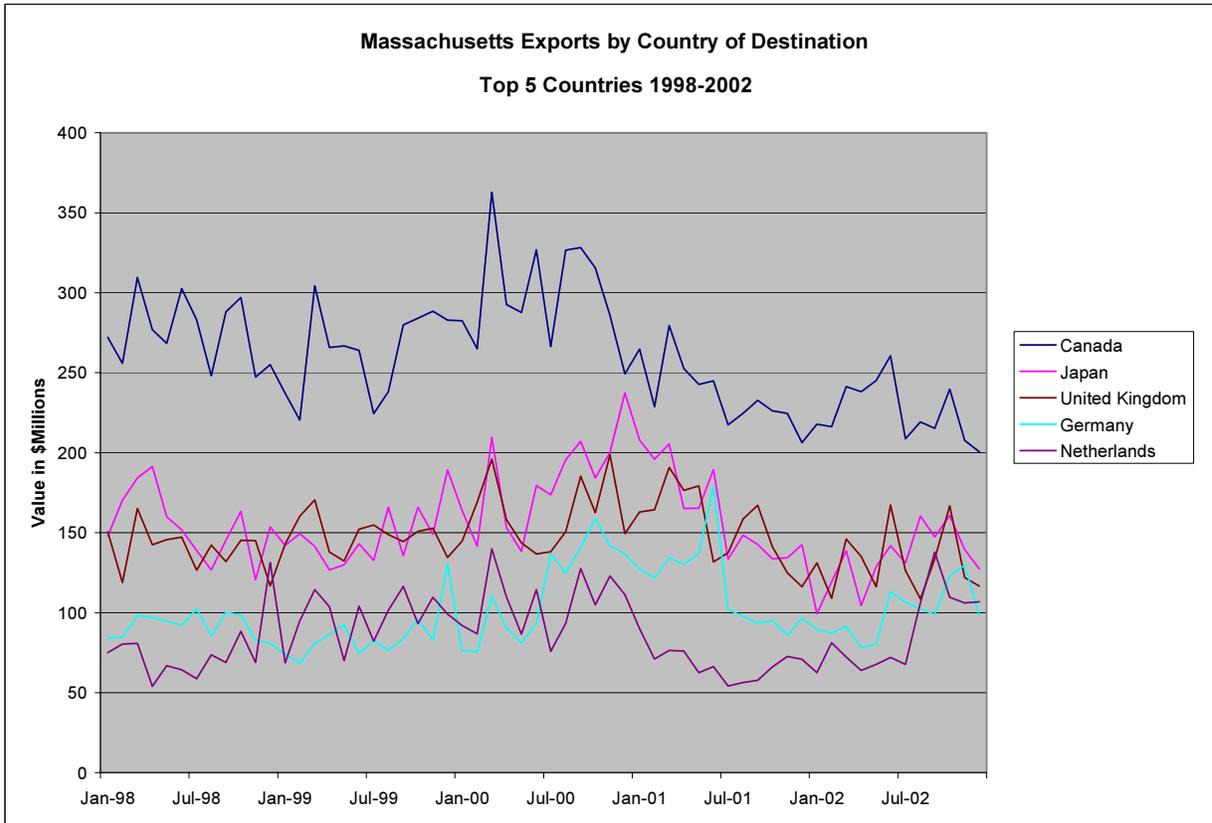
Shipments to the state's three major regional markets -- North America, Europe and Asia -- were all down in 2002 while the lesser markets of Latin America and Australia/ Oceania rose by solid margins. The biggest losses were in Europe, which saw exports fall by \$572.8 million, or 7.7%. Declines were concentrated in Western Europe and the European Union with minor increases in Eastern Europe and the Former Soviet Republics.

In Asia, exports to Japan took the biggest hit with decreases also coming in the Asia NICS and Asia Near East. These losses were partially offset by a healthy increase in exports to ASEAN which rose by \$335.8 million, or 25.8%. In all the sub-regions of Asia except Japan, losses this year were balanced by net export gains in 1998-2002. Massachusetts shipments to Japan in the five year period were down 13.8%.

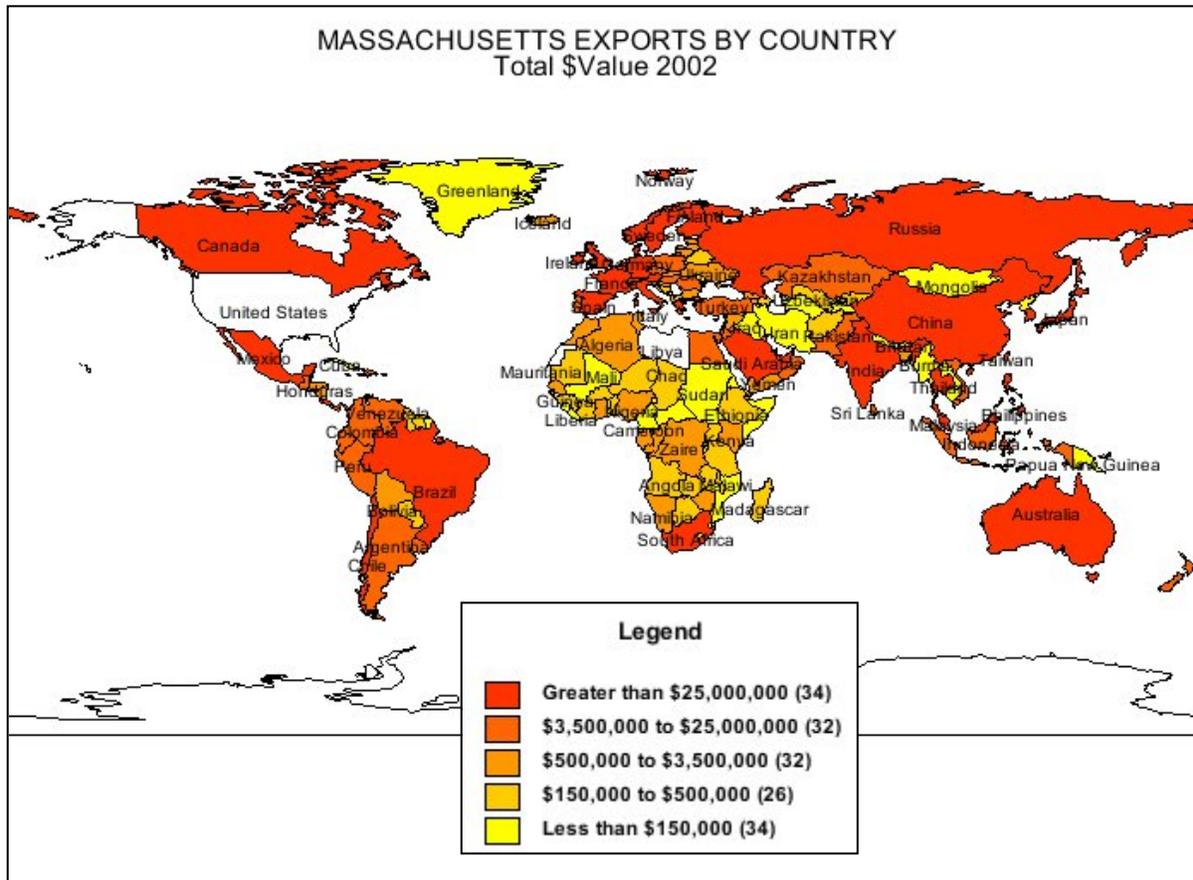
Closer to home, shipments also fell to both Canada and Mexico. The \$6.5 million decrease in Mexico shipments was minor, however, compared to the \$134.6 million slide in exports to our northern neighbor. Like Japan, Canada also showed a net loss in exports from 1998-2002. Shipments in this period were down 18%, compared to a corresponding gain for the US overall of 4.3%.

Exports to Latin America saw the greatest regional increase in exports, climbing by 30.8%, or \$189.2 million in 2002. This compares favorably to the corresponding US export average of -11.6% for the same period. The Massachusetts growth in Latin America was not in the large markets of South America but in smaller country markets of Central America.

Shipments to the relatively minor markets of Australia/Oceania also rose slightly in 2002 while exports to Africa continued on a downward slide.



Massachusetts Exports by Country of Destination and Leading HS Commodities



North America

Canada and Mexico are the only two countries among the Commonwealth's top 10 export destinations that are not "export markets of specialization" for the state. In other words, Massachusetts exports less to either Canada or Mexico than it does on average to other countries around the world. This seemingly lackluster performance comes despite the benefits of geographic proximity and NAFTA. As mentioned above, exports to Canada were down 18%, or \$593.7 million, from 1998 to 2002. Canada was the state's leading loss market during that period. Falling shipments in industrial machinery, including computers, and electric machinery accounted for most of the decline. Strong gains in exports of plastics and precious metals during the same period have been impressive but nowhere near enough to offset export losses. In '98-'02, shipments of plastics and precious metals advanced by 91.1% and 149.9%, respectively. Section VI of this report provides a more detailed analysis of the Canadian market

The situation in Mexico is quite different from that of Canada. Shipments to Mexico were down (-1.1%) in 2002 but this was less than the corresponding rate of decline for the US overall in the same period (-3.9%). Also, in '98-'02, exports from Massachusetts to Mexico have shown a healthy advance (up 20%) and have generally tracked US growth (up 23.4%). Obtaining an accurate read of Mass exports to Mexico is also complicated by significant under-reporting of exports from non-border states. Texas is credited with approximately 40% of all US exports to Mexico due to the consolidation of shipments at the border.

Europe

Traditionally strong export markets of the UK, Germany, and Belgium were among the state's European loss leaders in 2002 with Ireland registering the Continent's largest export decline at -\$277.2 million. Falling shipments in electric machinery followed by industrial machinery, including computers, were responsible for the bulk of the losses. On the other side of the trade ledger, export gains came from the Netherlands, Greece, Switzerland and France. Different products drove the advances in each market. Pharmaceuticals were responsible for much of the advance in the Netherlands, arms and ammunition in Greece, precious metals in Switzerland, and organic chemicals in France. Greece was the state's leading "export market of specialization" last year. This is shown in the last column of Table 6.1. Massachusetts accounted for 24.7% of all commodity exports from the US to Greece in 2002.

Asia

Despite a down year in 2002 (-3.8%), Massachusetts exports to Asia are still up a net 13.9% for 1998-2002. The latter figure compares to a corresponding growth rate of only 3.1% for the US overall in the same period. The biggest drag on state export growth to Asia this year and over the past five years has been Japan. Japan was the state's top export loss market in 2002 and the second largest loss market in 1998-2002 after Canada. Losses in 2002 were led by shipment declines in electric machinery; industrial machinery, including computers, and instrumentation. The strongest growth markets in the region for the Commonwealth have been Malaysia and the Philippines. Malaysia was the state's second largest export growth market in 2002 (up 86%) and top growth market in '98-'02 (up 207%). In both Malaysia and the Philippines, electronic integrated circuits and microassemblies were the state's top export commodity in 2002.

Latin America

An extraordinary export gain of \$260.2 million in electric machinery (primarily integrated circuits) to Costa Rica paced the state's overall advance in exports to Latin America in 2002. Without the Costa Rica shipment, state exports to the region would have followed US trade performance overall into the negative numbers. Other Latin American markets in the state's top 40 export destinations include Brazil, Argentina, Chile and the Dominican Republic. Exports to all four markets were down in 2002.

Australia and Oceania

Although minor in scale to other regional export markets, shipments to Australia and Oceania were up in 2002 largely on gains to the Australian market itself. Pharmaceutical shipments were a major contributor to the advance.

Africa

Exporting to Africa continues to be largely a non-event for state manufacturers. In 2002, a small total trade volume of \$73.1 million reflected a one year drop in exports of \$56.3 million, or 43.5%. Shipments from the US overall were down as well but only by 13.8% in the same period. Only one African nation – South Africa -- made the state's list of top 40 export destinations.

Table 6.1
Massachusetts Exports by Country of Destination
Top 40 Countries 2002
Dollar Value of Shipments in Millions

	MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
TOTAL ALL COUNTRIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
1 Canada	2,709.9	-134.6	-4.7	-1.8	-593.7	-18.0	4.3	1.7
2 Japan	1,598.7	-365.4	-18.6	-10.8	-255.0	-13.8	-11.1	3.1
3 United Kingdom	1,578.9	-272.1	-14.7	-18.5	-98.5	-5.9	-14.9	4.7
4 Germany	1,198.5	-202.3	-14.4	-11.6	97.5	8.9	-0.1	4.5
5 Netherlands	1,054.0	233.8	28.5	-6.1	142.5	15.6	-3.5	5.7
6 France	921.5	56.7	6.6	-4.4	265.6	40.5	7.3	4.8
7 Mexico	564.4	-6.5	-1.1	-3.9	94.0	20.0	23.4	0.6
8 Malaysia	530.8	245.4	86.0	10.3	357.9	207.0	15.6	5.1
9 Singapore	512.6	17.8	3.6	-8.3	97.7	23.6	3.5	3.2
10 China (Taiwan)	511.9	-0.6	-0.1	1.3	-24.0	-4.5	1.3	2.8
11 Philippines	500.7	74.6	17.5	-5.1	205.8	69.8	7.9	6.9
12 Korea, Republic Of	471.2	-19.8	-4.0	1.8	167.9	55.3	36.6	2.1
13 Ireland	422.3	-277.2	-39.6	-5.6	37.1	9.6	19.4	6.3
14 China (Mainland)	384.4	-41.0	-9.6	14.6	98.3	34.3	54.7	1.7
15 Hong Kong	382.0	-41.7	-9.8	-10.4	-4.2	-1.1	-2.4	3.0
16 Costa Rica	349.2	274.8	368.9	25.5	331.1	1,826.8	36.2	11.2
17 Italy	344.4	-36.3	-9.5	1.7	6.6	2.0	11.8	3.4
18 Greece	284.8	95.1	50.1	-11.0	256.0	889.6	-14.9	24.7
19 Belgium	276.0	-139.5	-33.6	-1.3	-21.3	-7.2	-4.1	2.1
20 Brazil	257.2	-36.3	-12.4	-22.1	59.4	30.1	-18.1	2.1
21 Australia	250.8	13.3	5.6	19.5	-7.9	-3.1	9.7	1.9
22 Switzerland	193.8	70.4	57.1	-20.9	37.9	24.3	7.3	2.5
23 Israel	156.4	-76.5	-32.9	-5.9	-12.9	-7.6	0.9	2.2
24 Sweden	117.4	-53.5	-31.3	-11.1	-95.5	-44.9	-17.4	3.7
25 Spain	115.3	-8.1	-6.6	-10.1	-31.2	-21.3	-4.4	2.2
26 India	94.4	8.5	9.9	8.9	22.4	31.1	15.6	2.3
27 Thailand	81.9	-1.9	-2.3	-18.9	5.2	6.8	-7.1	1.7
28 Saudi Arabia	53.7	17.3	47.6	-20.0	-2.1	-3.7	-54.6	1.1
29 Finland	52.3	-3.1	-5.6	-1.1	-68.8	-56.8	-19.8	3.4
30 Austria	44.8	-22.0	-32.9	-7.7	-24.1	-35.0	-3.3	1.9
31 United Arab Emirates	42.4	-3.4	-7.4	36.3	16.9	65.9	51.9	1.2
32 Russia	41.8	8.3	24.9	-12.0	11.9	39.9	-33.1	1.7
33 Republic Of South Africa	38.8	-8.3	-17.6	-14.7	-15.0	-27.9	-30.4	1.5
34 Denmark	36.8	-0.4	-1.2	-7.1	-3.4	-8.5	-20.2	2.5
35 Norway	29.9	-8.6	-22.3	-23.5	-10.6	-26.2	-17.7	2.1
36 Chile	27.6	-3.1	-10.0	-16.6	-13.6	-33.1	-34.5	1.1
37 Dominican Republic	23.8	-4.6	-16.3	-3.9	-5.9	-19.7	7.1	0.6
38 Argentina	23.8	-33.3	-58.3	-59.5	-35.7	-60.0	-73.0	1.5
39 Czech Republic	23.3	5.9	34.1	-7.4	13.1	128.6	15.1	3.6
40 Turkey	22.4	-4.1	-15.6	0.0	-38.1	-63.0	-11.6	0.7

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 6.2
Massachusetts Exports by Country of Destination
Top 10 Gains and Losses 2001-2002 and 1998-2002

	MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
TOP 10 GROWTH COUNTRIES 2001-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
1 Costa Rica	349.2	274.8	368.9	25.5	331.1	1,826.8	36.2	11.2
2 Malaysia	530.8	245.4	86.0	10.3	357.9	207.0	15.6	5.1
3 Netherlands	1,054.0	233.8	28.5	-6.1	142.5	15.6	-3.5	5.7
4 Greece	284.8	95.1	50.1	-11.0	256.0	889.6	-14.9	24.7
5 Philippines	500.7	74.6	17.5	-5.1	205.8	69.8	7.9	6.9
6 Switzerland	193.8	70.4	57.1	-20.9	37.9	24.3	7.3	2.5
7 France	921.5	56.7	6.6	-4.4	265.6	40.5	7.3	4.8
8 Singapore	512.6	17.8	3.6	-8.3	97.7	23.6	3.5	3.2
9 Saudi Arabia	53.7	17.3	47.6	-20.0	-2.1	-3.7	-54.6	1.1
10 Australia	250.8	13.3	5.6	19.5	-7.9	-3.1	9.7	1.9
	MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
TOP 10 GROWTH COUNTRIES 1998-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
1 Malaysia	530.8	245.4	86.0	10.3	357.9	207.0	15.6	5.1
2 Costa Rica	349.2	274.8	368.9	25.5	331.1	1,826.8	36.2	11.2
3 France	921.5	56.7	6.6	-4.4	265.6	40.5	7.3	4.8
4 Greece	284.8	95.1	50.1	-11.0	256.0	889.6	-14.9	24.7
5 Philippines	500.7	74.6	17.5	-5.1	205.8	69.8	7.9	6.9
6 Korea, Republic Of	471.2	-19.8	-4.0	1.8	167.9	55.3	36.6	2.1
7 Netherlands	1,054.0	233.8	28.5	-6.1	142.5	15.6	-3.5	5.7
8 China (Mainland)	384.4	-41.0	-9.6	14.6	98.3	34.3	54.7	1.7
9 Singapore	512.6	17.8	3.6	-8.3	97.7	23.6	3.5	3.2
10 Germany	1,198.5	-202.3	-14.4	-11.6	97.5	8.9	-0.1	4.5
	MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
TOP 10 LOSSES 2001-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
1 Japan	1,598.7	-365.4	-18.6	-10.8	-255.0	-13.8	-11.1	3.1
2 Ireland	422.3	-277.2	-39.6	-5.6	37.1	9.6	19.4	6.3
3 United Kingdom	1,578.9	-272.1	-14.7	-18.5	-98.5	-5.9	-14.9	4.7
4 Germany	1,198.5	-202.3	-14.4	-11.6	97.5	8.9	-0.1	4.5
5 Belgium	276.0	-139.5	-33.6	-1.3	-21.3	-7.2	-4.1	2.1
6 Canada	2,709.9	-134.6	-4.7	-1.8	-593.7	-18.0	4.3	1.7
7 Israel	156.4	-76.5	-32.9	-5.9	-12.9	-7.6	0.9	2.2
8 Sweden	117.4	-53.5	-31.3	-11.1	-95.5	-44.9	-17.4	3.7
9 Hong Kong	382.0	-41.7	-9.8	-10.4	-4.2	-1.1	-2.4	3.0
10 China (Mainland)	384.4	-41.0	-9.6	14.6	98.3	34.3	54.7	1.7
	MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
TOP 10 LOSSES 1998-2002	2002	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2002
1 Canada	2,709.9	-134.6	-4.7	-1.8	-593.7	-18.0	4.3	1.7
2 Japan	1,598.7	-365.4	-18.6	-10.8	-255.0	-13.8	-11.1	3.1
3 United Kingdom	1,578.9	-272.1	-14.7	-18.5	-98.5	-5.9	-14.9	4.7
4 Sweden	117.4	-53.5	-31.3	-11.1	-95.5	-44.9	-17.4	3.7
5 Finland	52.3	-3.1	-5.6	-1.1	-68.8	-56.8	-19.8	3.4
6 Turkey	22.4	-4.1	-15.6	0.0	-38.1	-63.0	-11.6	0.7
7 Argentina	23.8	-33.3	-58.3	-59.5	-35.7	-60.0	-73.0	1.5
8 Spain	115.3	-8.1	-6.6	-10.1	-31.2	-21.3	-4.4	2.2
9 Indonesia	20.5	0.9	4.7	3.3	-31.1	-60.3	12.7	0.8
10 Austria	44.8	-22.0	-32.9	-7.7	-24.1	-35.0	-3.3	1.9

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 7
Massachusetts Exports by Country of Destination by Leading HS Chapters
Top 12 Countries by Top 10 2-Digit HS Commodity Chapters

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
		2002	INCR	%INCR	%INCR	INCR	%INCR	%INCR	US 2002
HS	TOTAL ALL COUNTRIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
	Canada	2,709.9	-134.6	-4.7	-1.8	-593.7	-18.0	4.3	1.7
84	Industrial Machinery, Including Computers	615.0	-162.6	-20.9	-5.0	-488.9	-44.3	-3.6	2.0
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	514.3	-111.1	-17.8	-14.7	-219.4	-29.9	-15.1	3.0
39	Plastics And Articles Thereof	258.1	112.1	76.7	4.6	123.0	91.1	19.7	3.6
90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	213.7	1.3	0.6	-9.2	34.4	19.2	4.8	3.9
48	Paper & Paperboard & Articles (Inc Papr Pulp Artl)	161.7	9.1	6.0	-0.2	13.7	9.3	21.6	4.3
82	Tools, Cutlery Etc. Of Base Metal & Parts Thereof	92.4	10.7	13.1	4.6	14.0	17.9	4.7	9.3
71	Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	69.3	33.0	91.0	15.3	41.5	149.9	-0.8	6.3
98	Special Classification Provisions, Nesoi	61.7	-6.4	-9.4	-16.5	-12.9	-17.3	28.9	1.3
3	Fish, Crustaceans & Aquatic Invertebrates	50.5	-0.2	-0.4	1.4	1.0	2.0	32.2	9.0
95	Toys, Games & Sport Equipment; Parts & Accessories	48.0	1.2	2.6	5.1	8.8	22.3	7.8	3.8
	Japan	1,598.7	-365.4	-18.6	-10.8	-255.0	-13.8	-11.1	3.1
90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	492.0	-79.3	-13.9	-10.9	46.1	10.3	10.0	9.1
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	364.0	-221.4	-37.8	-23.2	-66.2	-15.4	-20.8	5.7
84	Industrial Machinery, Including Computers	317.7	-120.4	-27.5	-21.4	-284.7	-47.3	-10.1	4.2
93	Arms And Ammunition; Parts And Accessories Thereof	65.9	52.7	401.1	-3.6	26.5	67.4	-20.2	19.6
30	Pharmaceutical Products	54.1	1.1	2.1	6.8	29.9	123.5	59.0	5.9
39	Plastics And Articles Thereof	37.9	-3.8	-9.1	-4.7	-7.1	-15.7	10.2	3.2
38	Miscellaneous Chemical Products	33.5	7.3	27.8	-4.4	8.6	34.6	15.2	3.3
3	Fish, Crustaceans & Aquatic Invertebrates	24.2	-7.7	-24.2	-4.6	-17.9	-42.6	15.7	2.3
41	Raw Hides And Skins (No Furskins) And Leather	17.4	13.8	387.7	-26.9	16.2	1,457.6	-5.3	16.1
95	Toys, Games & Sport Equipment; Parts & Accessories	16.6	1.6	11.0	-31.8	-13.9	-45.5	-30.8	4.3
	United Kingdom	1,578.9	-272.1	-14.7	-18.5	-98.5	-5.9	-14.9	4.7
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	327.3	-209.4	-39.0	-25.5	-31.0	-8.7	-21.4	8.2
30	Pharmaceutical Products	295.3	88.1	42.5	-26.8	185.2	168.1	201.6	16.6
84	Industrial Machinery, Including Computers	293.8	-95.5	-24.5	-19.0	-199.1	-40.4	-16.1	3.6
90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	260.9	-58.5	-18.3	-15.6	9.3	3.7	5.3	10.4
82	Tools, Cutlery Etc. Of Base Metal & Parts Thereof	85.9	-13.4	-13.5	-10.8	22.2	34.8	-9.4	36.7
39	Plastics And Articles Thereof	84.8	10.1	13.5	-4.5	27.4	47.8	-2.5	11.1
95	Toys, Games & Sport Equipment; Parts & Accessories	28.3	-5.3	-15.9	-5.3	13.3	88.5	14.0	7.6
37	Photographic Or Cinematographic Goods	20.8	15.8	321.2	-3.4	-18.4	-47.0	-16.6	10.8
48	Paper & Paperboard & Articles (Inc Papr Pulp Artl)	19.0	9.8	106.5	-20.4	1.4	8.2	-31.1	8.0
71	Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	13.2	3.6	38.0	-11.5	-85.4	-86.6	-47.7	0.8
	Germany	1,198.5	-202.3	-14.4	-11.6	97.5	8.9	-0.1	4.5
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	350.6	-186.8	-34.8	-10.4	108.7	44.9	26.8	9.4
90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	300.7	-8.3	-2.7	-11.4	66.7	28.5	15.7	9.3
84	Industrial Machinery, Including Computers	183.7	-51.5	-21.9	-21.2	-199.4	-52.0	-7.1	3.0
29	Organic Chemicals	88.6	85.5	2,769.9	3.6	88.0	16,369.6	55.8	16.6
30	Pharmaceutical Products	36.0	-2.3	-6.1	-20.2	8.0	28.6	-13.0	6.6
72	Iron And Steel	32.4	-0.1	-0.3	-29.2	25.0	336.5	36.3	45.5
39	Plastics And Articles Thereof	31.3	1.0	3.2	1.4	11.2	55.4	-4.7	5.1
28	Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	21.4	0.4	2.1	4.6	7.5	54.2	-18.3	10.4
38	Miscellaneous Chemical Products	20.7	1.2	6.2	-0.2	1.3	6.6	-13.0	3.5
81	Base Metals Nesoi; Cermets; Articles Thereof	17.6	-11.6	-39.8	-17.2	7.5	74.9	21.3	16.8

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 7 (continued)
Massachusetts Exports by Country of Destination by Leading HS Chapters
Top 12 Countries by Top 10 2-Digit HS Commodity Chapters

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
		2002	INCR	%INCR	%INCR	INCR	%INCR	%INCR	US 2002
HS	TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
	Netherlands	1,054.0	233.8	28.5	-6.1	142.5	15.6	-3.5	5.7
90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	399.2	86.8	27.8	4.3	165.4	70.7	13.2	17.8
30	Pharmaceutical Products	236.2	231.7	5,149.3	66.3	165.9	235.7	101.4	22.1
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	127.5	-79.3	-38.3	9.3	-54.9	-30.1	38.0	4.7
37	Photographic Or Cinematographic Goods	80.0	67.8	553.7	69.7	-4.1	-4.9	-33.0	77.0
84	Industrial Machinery, Including Computers	67.2	-36.6	-35.2	-24.5	-103.9	-60.7	-22.5	1.6
48	Paper & Paperboard & Articles (Inc Papr Pulp Artl)	32.2	-11.6	-26.4	-10.1	-3.0	-8.5	-23.7	15.7
39	Plastics And Articles Thereof	25.5	-5.9	-18.7	2.4	-28.2	-52.5	-9.7	3.7
20	Prep Vegetables, Fruit, Nuts Or Other Plant Parts	9.0	-2.3	-20.3	34.7	8.8	5,473.7	74.6	5.6
38	Miscellaneous Chemical Products	7.9	2.2	38.6	6.5	6.6	521.1	32.1	1.6
49	Printed Books, Newspapers Etc; Manuscripts Etc	6.6	-3.2	-32.8	-28.4	-0.1	-1.2	-27.4	9.0
	France	921.5	56.7	6.6	-4.4	265.6	40.5	7.3	4.8
29	Organic Chemicals	328.6	93.6	39.8	21.7	269.1	452.2	106.7	19.9
90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	151.9	29.1	23.7	-10.5	51.0	50.5	1.8	8.1
84	Industrial Machinery, Including Computers	143.4	-60.8	-29.8	-11.4	-37.2	-20.6	-5.3	2.6
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	142.4	-19.5	-12.0	-12.7	-16.5	-10.4	-12.7	7.9
3	Fish, Crustaceans & Aquatic Invertebrates	38.7	13.1	51.3	22.0	1.6	4.2	22.9	40.7
30	Pharmaceutical Products	30.4	12.0	65.2	-5.5	13.6	80.5	88.2	4.9
38	Miscellaneous Chemical Products	22.4	-0.7	-3.1	10.1	7.3	48.6	-6.8	5.4
39	Plastics And Articles Thereof	9.9	-1.2	-10.5	-0.9	-7.6	-43.5	-2.4	2.7
88	Aircraft, Spacecraft, And Parts Thereof	9.5	0.8	9.6	31.5	5.9	164.6	50.5	0.3
97	Works Of Art, Collectors' Pieces And Antiques	6.7	5.1	323.8	-14.8	4.9	279.7	30.9	2.5
	Mexico	564.4	-6.5	-1.1	-3.9	94.0	20.0	23.4	0.6
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	147.6	-5.6	-3.6	-11.9	60.4	69.2	16.7	0.7
39	Plastics And Articles Thereof	108.2	5.6	5.4	1.0	28.4	35.5	34.5	1.6
84	Industrial Machinery, Including Computers	97.5	4.1	4.4	1.7	-5.4	-5.2	32.5	0.7
90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	40.5	-6.4	-13.6	7.1	-0.5	-1.2	50.9	1.2
59	Impregnated Etc Text Fabrics; Tex Art For Industry	15.5	3.2	25.8	9.7	5.6	57.1	96.9	3.3
72	Iron And Steel	15.5	-2.4	-13.3	-8.7	-0.4	-2.3	11.1	1.4
82	Tools, Cutlery Etc. Of Base Metal & Parts Thereof	11.3	0.6	5.1	-12.0	4.9	75.2	6.6	4.0
48	Paper & Paperboard & Articles (Inc Papr Pulp Artl)	11.1	0.9	8.6	-10.6	-7.2	-39.4	11.5	0.5
33	Essential Oils Etc; Perfumery, Cosmetic Etc Preps	10.2	-3.6	-26.0	-6.1	-0.5	-4.2	59.8	2.6
76	Aluminum And Articles Thereof	9.5	1.7	21.7	7.8	5.3	129.0	7.3	0.9
	Malaysia	530.8	245.4	86.0	10.3	357.9	207.0	15.6	5.1
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	403.7	227.2	128.7	18.8	312.7	343.7	29.5	7.1
90	Optic, Photo Etc, Medic Or Surgical Instrments Etc	63.6	14.3	28.9	9.2	27.0	73.9	35.4	11.6
84	Industrial Machinery, Including Computers	29.0	-2.4	-7.6	-6.1	0.0	0.1	12.3	1.8
82	Tools, Cutlery Etc. Of Base Metal & Parts Thereof	13.0	4.0	45.1	59.7	10.2	360.7	113.4	42.1
39	Plastics And Articles Thereof	4.8	1.6	52.2	-3.0	2.6	116.8	31.0	2.8
72	Iron And Steel	4.2	-2.0	-32.1	-8.5	4.2	NA	120.3	10.4
48	Paper & Paperboard & Articles (Inc Papr Pulp Artl)	2.1	-0.2	-8.9	6.0	1.4	194.9	-2.9	2.9
76	Aluminum And Articles Thereof	1.8	1.2	199.7	-7.5	-0.7	-28.9	-38.8	5.3
71	Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	1.0	1.0	26,915.8	120.5	1.0	11,781.0	127.8	3.4
28	Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	0.7	0.3	100.0	-10.2	0.6	806.3	0.1	1.2

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 7 (continued)
Massachusetts Exports by Country of Destination by Leading HS Chapters
Top 12 Countries by Top 10 2-Digit HS Commodity Chapters

	MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
	2002	INCR	%INCR	%INCR	INCR	%INCR	%INCR	US 2002
HS TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
Singapore	512.6	17.8	3.6	-8.3	97.7	23.6	3.5	3.2
90 Optic, Photo Etc, Medic Or Surgical Instrmnts Etc	193.6	60.5	45.4	10.2	87.7	82.8	25.6	17.2
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	159.6	32.4	25.5	-13.5	37.8	31.1	-26.5	4.2
84 Industrial Machinery, Including Computers	68.9	-71.1	-50.8	-10.2	-72.2	-51.2	-3.2	1.7
39 Plastics And Articles Thereof	27.2	-1.6	-5.6	10.2	14.8	119.9	25.3	4.5
98 Special Classification Provisions, Nesoi	12.4	-1.6	-11.6	-9.3	9.2	282.8	-0.7	2.5
28 Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	7.6	-5.5	-42.0	25.6	6.6	674.1	97.0	8.2
37 Photographic Or Cinematographic Goods	6.4	3.2	100.0	11.3	3.7	134.8	28.5	6.6
48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	3.2	-1.5	-31.4	-8.1	-0.2	-6.6	-30.5	5.0
38 Miscellaneous Chemical Products	3.2	-0.4	-12.1	10.8	1.6	98.4	25.1	1.0
88 Aircraft, Spacecraft, And Parts Thereof	2.6	0.6	31.9	-20.2	2.2	516.7	54.2	0.1
China (Taiwan)	511.9	-0.6	-0.1	1.3	-24.0	-4.5	1.3	2.8
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	165.9	-50.4	-23.3	13.5	-86.8	-34.3	32.5	2.7
90 Optic, Photo Etc, Medic Or Surgical Instrmnts Etc	161.3	38.8	31.6	14.2	46.9	41.0	40.5	10.9
84 Industrial Machinery, Including Computers	82.5	-5.3	-6.0	-8.5	-2.7	-3.2	2.5	2.5
39 Plastics And Articles Thereof	39.1	23.4	149.4	7.3	33.3	575.8	28.1	6.1
37 Photographic Or Cinematographic Goods	7.6	0.6	8.2	20.2	2.8	56.7	15.2	11.8
41 Raw Hides And Skins (No Furskins) And Leather	6.8	-0.4	-5.5	-7.3	6.3	1,389.2	8.7	2.8
29 Organic Chemicals	5.8	0.2	2.7	20.5	4.8	499.7	1.0	0.7
30 Pharmaceutical Products	4.6	0.2	4.1	5.7	3.3	247.8	68.4	3.3
98 Special Classification Provisions, Nesoi	4.3	-1.5	-25.2	-5.9	0.4	9.8	8.9	1.2
38 Miscellaneous Chemical Products	4.2	-0.4	-8.9	14.9	1.9	80.6	23.9	1.5
Philippines	500.7	74.6	17.5	-5.1	205.8	69.8	7.9	6.9
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	425.8	91.8	27.5	-0.7	224.4	111.4	25.6	8.7
90 Optic, Photo Etc, Medic Or Surgical Instrmnts Etc	37.0	-13.6	-26.9	-29.7	12.9	53.2	-29.7	19.6
84 Industrial Machinery, Including Computers	22.0	1.1	5.0	-25.7	-12.9	-36.9	-53.9	5.7
39 Plastics And Articles Thereof	4.3	1.7	63.8	-24.2	3.7	677.1	5.3	4.1
62 Apparel Articles And Accessories, Not Knit Etc.	2.1	0.4	25.2	32.9	0.2	7.9	-34.7	56.7
49 Printed Books, Newspapers Etc; Manuscripts Etc	2.1	-2.0	-48.0	-11.1	1.9	865.0	22.3	8.5
60 Knitted Or Crocheted Fabrics	1.4	-1.0	-40.5	-17.7	1.0	215.4	71.8	35.2
98 Special Classification Provisions, Nesoi	1.2	-1.0	-45.2	-24.7	0.8	173.1	-13.0	0.9
59 Impregnated Etc Text Fabrics; Tex Art For Industry	0.9	0.1	16.3	99.8	0.8	418.0	147.6	22.0
33 Essential Oils Etc; Perfumery, Cosmetic Etc Preps	0.3	-0.5	-57.7	-3.9	-0.5	-57.8	77.2	0.7
Korea, Republic Of	471.2	-19.8	-4.0	1.8	167.9	55.3	36.6	2.1
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	148.2	-14.9	-9.1	10.2	21.0	16.5	19.6	2.6
84 Industrial Machinery, Including Computers	110.1	19.1	21.0	-4.4	41.0	59.3	48.6	3.1
90 Optic, Photo Etc, Medic Or Surgical Instrmnts Etc	76.3	-14.7	-16.2	-8.0	35.3	86.2	48.6	6.6
3 Fish, Crustaceans & Aquatic Invertebrates	26.2	1.7	7.1	-0.9	20.4	350.4	237.8	8.5
41 Raw Hides And Skins (No Furskins) And Leather	18.3	-12.7	-41.0	-21.1	3.7	25.6	39.2	3.7
39 Plastics And Articles Thereof	13.7	-1.7	-11.1	20.2	6.2	81.9	69.3	2.1
30 Pharmaceutical Products	8.3	1.2	16.8	0.9	6.0	257.5	168.8	6.5
72 Iron And Steel	7.3	-3.1	-29.9	17.4	-3.0	-28.9	20.8	2.8
48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	5.5	2.6	89.9	12.2	4.0	264.9	43.7	3.3
70 Glass And Glassware	4.9	0.7	16.0	-4.2	4.0	416.8	61.5	5.3

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 8
Massachusetts Exports by Country of Destination by Leading HS Commodities
Top 12 Countries by Top 10 4-Digit HS Commodities

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
		2002	INCR	%INCR	%INCR	INCR	%INCR	%INCR	US 2002
HS4	TOTAL ALL COUNTRIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
	Canada	2,709.9	-134.6	-4.7	-1.8	-593.7	-18.0	4.3	1.7
8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	203.6	14.5	7.7	-11.6	-122.3	-37.5	24.9	11.3
8542	Electronic Integrated Circuits & Microassembl, Pts	155.7	-3.9	-2.4	-34.8	-135.8	-46.6	-55.8	7.2
8471	Automatic Data Process Machines; Magn Reader Etc	125.5	-123.6	-49.6	-5.8	-264.7	-67.8	-15.7	2.6
8212	Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	75.1	9.2	13.9	10.5	13.9	22.7	32.9	79.2
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	69.1	3.1	4.7	-4.1	35.3	104.4	24.4	8.1
8473	Parts Etc For Typewriters & Other Office Machines	65.0	-75.7	-53.8	-26.1	-94.3	-59.2	9.5	3.2
3907	Polyethers, Exopoxides & Polyesters, Primary Forms	61.8	56.7	1,125.2	0.1	60.0	3,368.3	3.3	9.3
3903	Polymers Of Styrene, In Primary Forms	56.2	46.9	505.5	-0.5	48.9	675.6	7.0	19.0
8536	Electrical Apparatus For Switching Etc, Nov 1000 V	51.7	-2.2	-4.1	-7.5	-1.1	-2.0	3.5	4.2
4811	Paper, Paperboard, Wad Etc, Coat Etc Nesoi, RI Etc	47.0	11.6	33.0	10.5	14.5	44.5	54.9	10.7
	Japan	1,598.7	-365.4	-18.6	-10.8	-255.0	-13.8	-11.1	3.1
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	263.9	-30.4	-10.3	-7.8	20.7	8.5	12.3	17.2
8471	Automatic Data Process Machines; Magn Reader Etc	91.0	-40.2	-30.6	-30.0	-127.5	-58.3	-23.7	5.1
8518	Microphones; Loudspeakers; Sound Amplifier Etc, Pt	67.5	36.1	115.1	-62.2	65.2	2,788.9	69.7	35.9
9306	Bombs, Grenades Etc; Cartridges Etc And Parts	62.6	51.8	481.3	69.3	23.5	60.0	35.3	26.6
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	61.8	-13.6	-18.0	-26.4	6.9	12.7	-12.7	10.0
8529	Parts For Television, Radio And Radar Apparatus	61.0	-43.4	-41.6	-29.6	39.2	179.7	-69.6	14.8
9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	59.9	-2.2	-3.6	-16.7	23.8	65.9	4.5	12.7
8517	Electric Apparatus For Line Telephony Etc, Parts	59.4	-146.6	-71.2	-5.3	-146.8	-71.2	0.1	7.1
8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	58.2	7.7	15.2	-12.2	38.7	198.7	36.9	4.7
8421	Centrifuges; Filter Etc Mach For Liq Or Gases; Pts	46.1	-8.5	-15.6	7.9	12.1	35.6	0.8	15.0
	United Kingdom	1,578.9	-272.1	-14.7	-18.5	-98.5	-5.9	-14.9	4.7
3004	Medicaments Nesoi, Mixed Or Not, In Dosage Etc Fm	275.9	88.7	47.4	-27.1	199.2	259.8	340.8	17.9
8542	Electronic Integrated Circuits & Microassembl, Pts	122.5	-170.1	-58.1	-36.5	-23.4	-16.0	-27.0	13.4
8473	Parts Etc For Typewriters & Other Office Machines	105.0	-43.6	-29.3	-28.1	-75.6	-41.9	-37.6	8.1
8212	Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	81.5	-13.9	-14.5	-16.2	20.9	34.5	-4.7	92.3
8471	Automatic Data Process Machines; Magn Reader Etc	77.7	-47.9	-38.1	-29.8	-129.3	-62.5	-35.8	5.6
9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	60.8	20.6	51.1	6.6	31.9	110.4	20.6	23.3
9021	Orthopedic Appl; Artif Body Pts; Hear Aid; Pts Etc	57.2	1.1	2.0	-2.8	13.6	31.3	45.7	25.2
8517	Electric Apparatus For Line Telephony Etc, Parts	52.5	-17.0	-24.4	-20.4	-20.5	-28.1	-3.7	9.2
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	38.9	-27.4	-41.3	-9.5	-3.6	-8.4	20.1	7.7
8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	31.0	-0.6	-2.0	-26.3	12.2	64.9	4.9	15.6
	Germany	1,198.5	-202.3	-14.4	-11.6	97.5	8.9	-0.1	4.5
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	154.8	4.6	3.0	1.7	42.8	38.2	36.5	14.0
8542	Electronic Integrated Circuits & Microassembl, Pts	98.2	22.8	30.2	20.8	20.8	26.8	102.7	7.2
2937	Hormones; Derivatives & Steroids Used As Hormones	87.5	86.9	13,141.1	2,968.8	87.4	102,650.3	2,349.8	96.2
8518	Microphones; Loudspeakers; Sound Amplifier Etc, Pt	77.2	-7.9	-9.3	-1.4	74.6	2,872.0	58.2	45.8
8471	Automatic Data Process Machines; Magn Reader Etc	43.3	-7.1	-14.0	-14.1	-131.0	-75.2	-38.4	4.5
8517	Electric Apparatus For Line Telephony Etc, Parts	38.7	-142.4	-78.6	-52.8	9.4	31.9	3.8	15.8
8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	36.9	0.0	0.0	-36.9	27.3	284.6	37.3	18.1
8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	33.4	-33.5	-50.1	-25.3	10.0	42.9	18.5	27.5
8473	Parts Etc For Typewriters & Other Office Machines	33.1	-12.9	-28.1	-36.2	-39.6	-54.5	-19.0	3.1
7220	Fl-RI Stainless Steel Products, Under 600mm Wide	31.9	0.5	1.7	-5.5	25.2	379.0	205.3	79.8

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 8 (continued)
Massachusetts Exports by Country of Destination by Leading HS Commodities
Top 12 Countries by Top 10 4-Digit HS Commodities

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
		2002	INCR	%INCR	%INCR	INCR	%INCR	%INCR	US 2002
HS4	TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
	Netherlands	1,054.0	233.8	28.5	-6.1	142.5	15.6	-3.5	5.7
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	258.8	138.7	115.5	24.9	128.3	98.2	36.1	25.3
3002	Human Blood; Animal Blood; Antisera, Vaccines Etc	235.3	231.7	6,484.7	349.3	235.2	298,369.4	234.9	78.2
3702	Photo Film In Rolls Sensitized, Unexposed	63.5	62.3	5,635.3	555.4	7.3	13.1	5.1	96.7
9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	43.3	1.1	2.6	0.9	16.5	61.4	18.6	21.3
9006	Photographic Still Cameras, Flash Apparatus Etc	37.0	-51.5	-58.2	-57.3	12.2	49.4	29.3	91.6
8506	Primary Cells & Batteries, Parts	31.4	11.2	55.6	57.4	14.9	90.6	60.2	91.3
8517	Electric Apparatus For Line Telephony Etc, Parts	29.0	-77.7	-72.9	37.2	-79.2	-73.2	194.6	2.7
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	26.8	2.8	11.6	-31.3	7.1	35.8	-32.5	23.3
8471	Automatic Data Process Machines; Magn Reader Etc	20.7	-27.9	-57.4	-30.9	-37.7	-64.6	-21.3	1.4
3920	Plates, Sheets, Film Etc No Ad, Non-Cel Etc, Plast	16.8	0.7	4.2	14.9	-17.8	-51.5	-23.4	16.6
	France	921.5	56.7	6.6	-4.4	265.6	40.5	7.3	4.8
2937	Hormones; Derivatives & Steroids Used As Hormones	328.0	94.2	40.3	15.1	268.7	453.4	214.4	57.9
8421	Centrifuges; Filter Etc Mach For Liq Or Gases; Pts	62.1	-16.6	-21.1	-16.5	28.4	84.5	37.7	38.4
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	61.1	9.2	17.7	-11.3	20.5	50.5	-13.9	12.5
8542	Electronic Integrated Circuits & Microassembl, Pts	47.4	-10.8	-18.5	-21.9	-18.7	-28.3	-41.1	12.8
9022	X-Ray Etc Apparatus; Tubes, Panels, Screen Etc, Pt	34.2	27.6	415.9	20.2	29.6	648.1	134.9	11.5
3002	Human Blood; Animal Blood; Antisera, Vaccines Etc	29.4	12.8	77.3	31.7	13.3	82.8	20.6	37.1
306	Crustcns Lve Frsh Etc, Ckd Etc.; Flrs Mls H Cnsump	26.2	10.1	62.8	17.3	10.8	69.8	39.7	82.0
8471	Automatic Data Process Machines; Magn Reader Etc	24.8	-6.5	-20.7	-18.4	-12.6	-33.7	-47.7	6.0
3822	Composite Diagnostic/Lab Reagents, Exc Pharmaceut	20.7	1.8	9.6	1.0	10.4	101.2	-4.1	13.1
8517	Electric Apparatus For Line Telephony Etc, Parts	19.2	-1.7	-8.0	-11.2	-9.2	-32.4	-18.7	12.3
	Mexico	564.4	-6.5	-1.1	-3.9	94.0	20.0	23.4	0.6
3907	Polyethers, Expoxides & Polyesters, Primary Forms	57.3	12.3	27.2	11.3	23.4	69.1	44.9	11.9
8542	Electronic Integrated Circuits & Microassembl, Pts	24.9	-4.3	-14.8	-21.0	9.0	57.0	62.4	0.6
8518	Microphones; Loudspeakers; Sound Amplifier Etc, Pt	20.1	-0.3	-1.6	-16.3	19.3	2,335.8	22.6	7.2
8477	Machinery For Working Rubber & Plast Etc Nesoi, Pt	19.1	4.7	32.3	-11.5	10.0	109.9	-31.3	11.7
8522	Parts And Accessories For Items 8519 To 8521	17.9	9.6	115.4	19.6	17.9	425,163.1	25.6	16.3
7204	Ferrous Waste & Scrap; Remelt Scr Iron/Steel Ingot	14.9	-2.3	-13.2	78.6	1.2	8.8	16.8	10.4
8479	Machines Etc Having Individual Functions Nesoi, Pt	14.7	-1.2	-7.5	-11.6	7.7	109.9	-6.9	2.2
8506	Primary Cells & Batteries, Parts	13.4	-2.1	-13.3	-23.9	13.2	5,949.3	6.6	15.8
3903	Polymers Of Styrene, In Primary Forms	13.2	4.2	47.2	10.1	6.9	108.7	4.2	5.1
8471	Automatic Data Process Machines; Magn Reader Etc	11.9	-4.9	-29.2	-5.4	-7.2	-37.8	93.4	0.4
	Malaysia	530.8	245.4	86.0	10.3	357.9	207.0	15.6	5.1
8542	Electronic Integrated Circuits & Microassembl, Pts	326.9	253.2	343.5	26.0	268.8	462.7	32.0	7.2
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	50.4	20.2	66.9	11.1	27.6	121.3	34.4	16.3
8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	40.9	10.3	33.9	7.0	27.4	202.9	4.6	10.8
8212	Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	12.9	4.5	54.2	52.2	10.1	357.9	39.4	100.0
8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	11.8	-22.0	-65.1	7.2	11.6	6,018.9	283.8	22.1
8479	Machines Etc Having Individual Functions Nesoi, Pt	10.1	-1.3	-11.8	-51.3	3.8	60.6	-35.7	8.3
8517	Electric Apparatus For Line Telephony Etc, Parts	5.8	-2.9	-33.2	26.3	2.4	69.0	137.5	5.3
8504	Elec Trans, Static Conv & Induct, Adp Pwr Supp, Pt	5.6	0.6	12.7	15.0	5.4	2,512.1	242.9	10.1
8471	Automatic Data Process Machines; Magn Reader Etc	5.1	-1.3	-20.0	-8.8	-5.4	-51.4	11.0	1.4
8473	Parts Etc For Typewriters & Other Office Machines	4.8	0.0	0.4	7.4	0.0	-0.7	-0.7	1.1

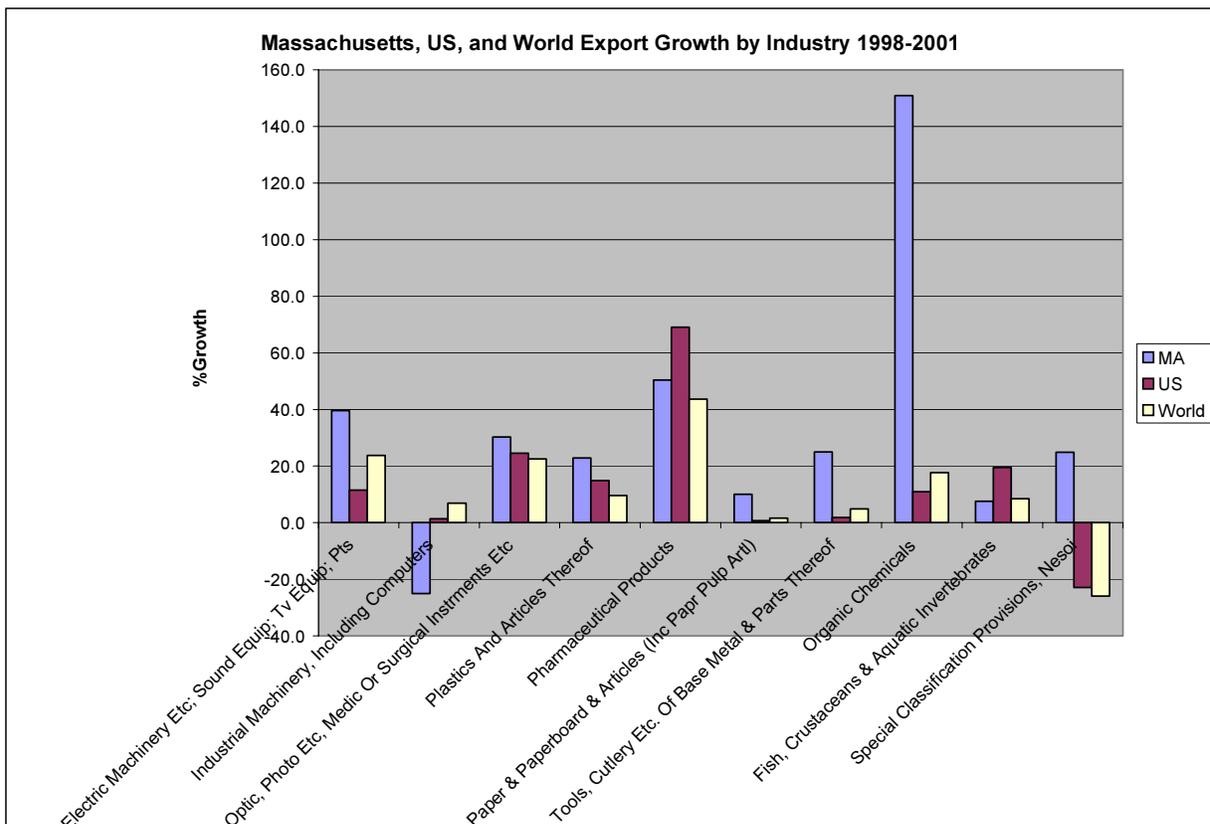
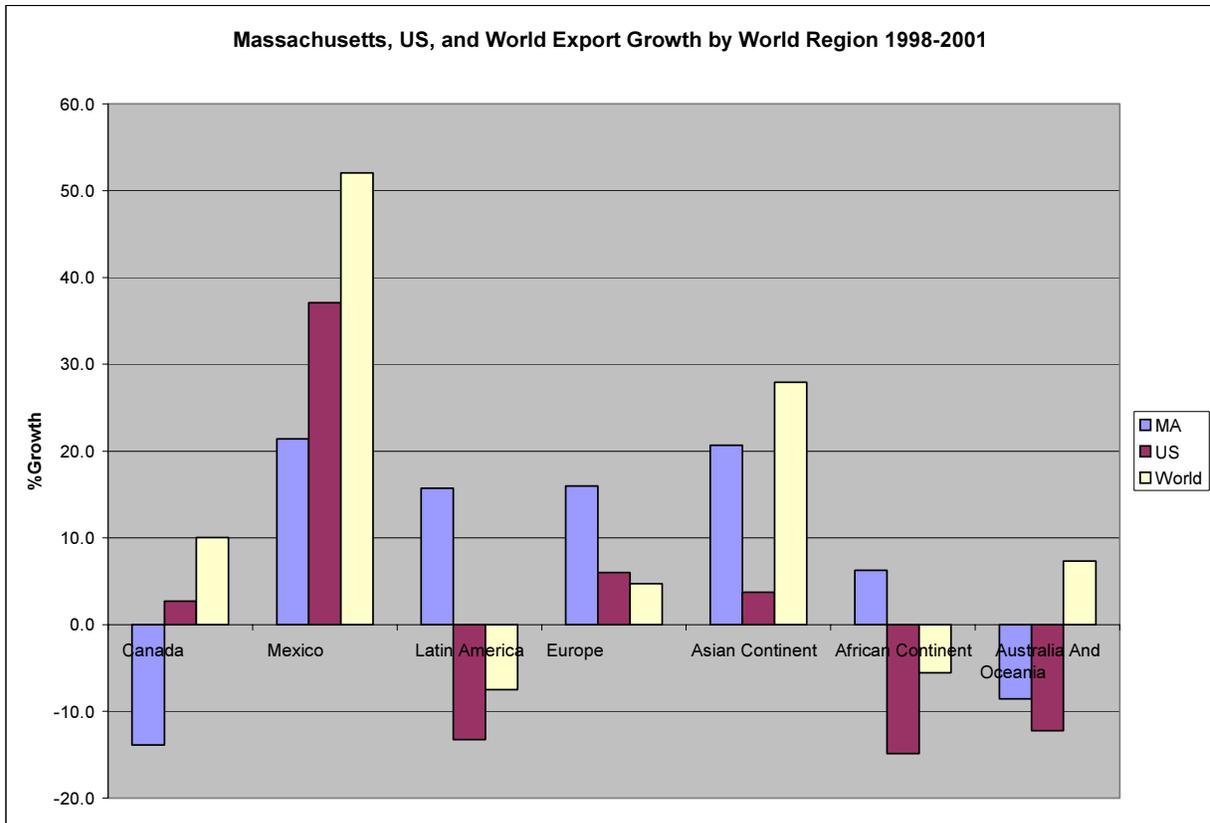
■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 8 (continued)
Massachusetts Exports by Country of Destination by Leading HS Commodities
Top 12 Countries by Top 10 4-Digit HS Commodities

		MA(\$mil)	MA 01-02	MA 01-02	US 01-02	MA 98-02	MA 98-02	US 98-02	MA AS %
		2002	INCR	%INCR	%INCR	INCR	%INCR	%INCR	US 2002
HS4	TOTAL ALL COMMODITIES	16,707.6	-782.5	-4.5	-5.2	829.4	5.2	1.9	2.4
	Singapore	512.6	17.8	3.6	-8.3	97.7	23.6	3.5	3.2
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	146.8	76.3	108.2	24.8	77.2	111.1	67.7	36.6
8542	Electronic Integrated Circuits & Microassembl, Pts	60.4	10.7	21.5	-23.5	13.2	28.0	-34.3	3.1
8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	40.8	24.7	154.3	94.9	19.4	91.0	139.8	33.2
8471	Automatic Data Process Machines; Magn Reader Etc	21.7	-6.9	-24.1	-28.5	-13.9	-39.0	-43.1	3.3
8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	17.4	5.9	51.0	28.9	11.2	178.9	41.9	6.9
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	14.0	-5.0	-26.4	-9.3	-0.6	-3.9	2.1	17.2
8473	Parts Etc For Typewriters & Other Office Machines	13.5	-58.9	-81.4	-9.8	-60.6	-81.8	-8.8	1.6
9801	Expts Of Repaired Impts; Impts Of Returned Expts	12.2	-1.5	-11.0	-18.6	9.6	367.0	102.9	9.2
3921	Plates, Sheets, Film, Foil & Strip Nesoi, Plastics	11.0	0.6	5.8	6.7	10.7	3,460.7	50.8	33.7
9032	Automatic Regulating Or Control Instruments; Parts	9.6	-3.7	-27.6	15.5	5.1	112.3	-1.7	18.6
	China (Taiwan)	511.9	-0.6	-0.1	1.3	-24.0	-4.5	1.3	2.8
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	118.3	52.7	80.3	27.8	49.3	71.5	49.5	23.4
8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	57.5	0.0	0.1	171.5	-18.7	-24.6	201.6	14.8
8517	Electric Apparatus For Line Telephony Etc, Parts	33.4	-11.2	-25.2	-31.2	14.0	72.3	-14.6	17.3
8542	Electronic Integrated Circuits & Microassembl, Pts	33.1	-43.3	-56.7	16.5	-67.5	-67.1	52.8	0.8
3926	Articles Of Plastics (Inc Polymers & Resins) Nesoi	31.8	25.8	428.6	35.1	29.7	1,445.1	118.5	48.6
8479	Machines Etc Having Individual Functions Nesoi, Pt	21.9	2.7	14.2	-11.3	8.3	60.5	12.6	2.4
8471	Automatic Data Process Machines; Magn Reader Etc	12.7	-0.3	-2.4	-24.1	-5.4	-29.8	-4.3	3.1
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	10.9	2.0	22.5	10.1	-0.9	-7.6	18.5	9.0
9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	9.5	-0.9	-8.7	-18.4	2.2	30.1	13.0	9.3
8421	Centrifuges; Filter Etc Mach For Liq Or Gases; Pts	9.0	-0.3	-3.3	10.8	5.2	135.7	16.1	7.1
	Philippines	500.7	74.6	17.5	-5.1	205.8	69.8	7.9	6.9
8542	Electronic Integrated Circuits & Microassembl, Pts	408.0	106.6	35.4	0.7	237.4	139.2	42.9	9.6
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	31.2	-11.7	-27.2	-32.0	12.1	63.1	-41.0	28.0
8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	9.0	-3.7	-29.2	50.1	6.7	299.5	-20.3	2.6
8479	Machines Etc Having Individual Functions Nesoi, Pt	7.9	-2.4	-23.3	-19.9	-15.5	-66.1	-77.0	17.5
8456	Machine Tools For Material Removal By Laser Etc	5.7	5.4	1,893.2	170.6	5.5	3,268.2	310.8	91.8
8471	Automatic Data Process Machines; Magn Reader Etc	3.1	0.1	1.7	-33.0	1.6	105.8	-44.2	5.3
8473	Parts Etc For Typewriters & Other Office Machines	2.7	0.7	36.0	-27.3	-0.3	-8.7	-38.4	3.1
8546	Electrical Insulators Of Any Material	2.6	1.4	121.9	67.1	2.5	2,266.8	137.3	62.7
3921	Plates, Sheets, Film, Foil & Strip Nesoi, Plastics	2.4	2.1	695.1	57.5	2.4	52,864.7	194.1	41.1
9031	Machines, Nesoi In Chapter 90; Profile Project, Pt	2.2	-1.8	-44.1	-24.0	-0.1	-2.8	5.2	18.9
	Korea, Republic Of	471.2	-19.8	-4.0	1.8	167.9	55.3	36.6	2.1
8542	Electronic Integrated Circuits & Microassembl, Pts	70.9	1.6	2.3	13.9	19.7	38.4	11.9	1.9
8471	Automatic Data Process Machines; Magn Reader Etc	27.8	8.4	43.2	-14.6	5.9	26.8	70.7	4.0
8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	23.3	12.8	122.1	64.4	21.7	1,395.1	22.6	6.4
303	Fish, Frozen (No Fish Fillets Or Other Fish Meat)	21.3	4.0	23.0	-2.7	16.7	363.0	400.4	14.3
8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	18.7	-14.5	-43.8	114.9	13.5	258.6	281.8	6.2
4101	Raw Hides & Skins Of Bovine Or Equine Animals	18.2	-12.4	-40.6	-25.6	3.7	25.9	43.1	4.4
8517	Electric Apparatus For Line Telephony Etc, Parts	17.9	-3.0	-14.2	-12.5	4.6	34.4	65.6	5.5
9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	16.9	1.5	9.8	-11.6	7.5	80.6	54.7	13.2
9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	16.0	10.2	174.2	12.3	14.3	859.4	148.2	7.8
9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	12.5	-10.0	-44.4	-30.9	3.1	33.0	-2.9	6.5

■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

V. MASSACHUSETTS EXPORT PERFORMANCE AMONG WORLD COMPETITORS IN NON-US MARKETS



Massachusetts's Export Performance among World Competitors in Non-US Markets

The United Nation's data in the following tables present Massachusetts exports from a slightly different perspective. Here the performance of the state's top 20 HS2 and HS4 commodities are compared to US, non-US, and World growth rates in exports to non-US markets. The tables provide an indicator of the state's most competitive industries and destination markets during 1998-2001. (UN data for 2002 was not available as of the writing of this report.) State, US, and non-US growth rates are highlighted where they outperform World export growth from 1998-2001. These are industries or countries in which our market shares are increasing faster than World competitors. The fastest growing export industries or markets Worldwide are highlighted in orange. State, US, and non-US shares of World exports to non-US markets (the last set of columns on the right) are also highlighted if a particular industry or country market share is higher than the state's average share of total World exports.

2-Digit Highlights

- Massachusetts export growth was ahead of the US and slightly behind World growth from 1998-2001. However, in the state's top 20 industries, which make up 91.7% of its total exports, the state came in ahead of both the US and the World. State exports outperformed World in 8 of Massachusetts' top 10 sectors, including its top ranked electric equipment sector. However, the state fell way behind in machinery and computers, its number two export sector.
- Massachusetts outperformed World growth in all of its top 10 performing sectors by dollar value of increase. The top four increases, electric equipment, instruments, organic chemicals, and pharmaceuticals, are also areas of strong World growth. Massachusetts' top 10 declining industries are also industries of negative or slow growth worldwide, with the exception of perfume and cosmetics.
- Several industries in the Commonwealth stand out as being on a fast track for international growth *or* commanding a higher than average share of world export markets. Organic chemicals represent an example of an industry on a very rapid growth curve. US, non-US and World export growth rates pale next to the 150.9% rise in international shipments that organic chemicals have enjoyed since 1998. Tools, cutlery, etc.; miscellaneous chemical products; inorganic chemicals; and iron and steel are other industries where Massachusetts exporters are expanding in overseas markets at significantly faster rates than their international counterparts.
- Instrumentation exports from Massachusetts, on the other hand, are rising at only a slightly elevated rate above other US and non-US competitors, but the sector has a high percentage share of world markets (2.2%) compared to other Massachusetts industries. The state also faces tough US and World competition in pharmaceuticals, the second fastest growing export among the state's top 10 industries.
- Base metals not elsewhere specified (largely unwrought tantalum and articles of tantalum) has the same percentage share of world markets as instrumentation but at a much lower scale of export volume. Base metals exports dropped 42%, however, in 2002.

Table 9

Massachusetts, U.S., Non-U.S. and World Exports to Non-US Markets by 2-Digit HS Commodity Comparative Growth Rates 1998-2001 and World Market Shares 2001

		2001 (\$mil)	Industry	1998-01	% Growth 1998-2001					%Share of World 2001		
Commodity Description		MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US	
HS2	TOTAL ALL HS COMMODITY CHAPTERS	17,490.1	100.0	1,611.9	10.2	6.9	12.8	11.9	0.37	15.4	84.6	
	MA Total Top 20 Chapters	16,034.1	91.7	1,811.5	12.7	8.7	11.9	11.3	0.62	18.5	81.5	
1	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	5,462.1	31.2	1,548.3	39.6	11.5	27.2	23.8	0.78	19.5	80.5	
2	84 Industrial Machinery, Including Computers	3,554.8	20.3	-1,188.0	-25.0	1.3	8.5	6.9	0.52	20.9	79.1	
3	90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,293.4	18.8	767.1	30.4	24.6	21.6	22.5	2.21	31.3	68.7	
4	39 Plastics And Articles Thereof	681.1	3.9	126.8	22.9	14.9	8.4	9.6	0.42	18.4	81.6	
5	30 Pharmaceutical Products	495.7	2.8	166.0	50.4	69.1	39.3	43.6	0.51	17.2	82.8	
6	48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	329.5	1.9	29.9	10.0	0.7	1.8	1.7	0.41	14.3	85.7	
7	82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	310.6	1.8	62.0	24.9	1.8	5.5	4.8	1.54	16.8	83.2	
8	29 Organic Chemicals	279.7	1.6	168.2	150.9	11.0	19.0	17.6	0.21	15.6	84.4	
9	03 Fish, Crustaceans & Aquatic Invertebrates	218.9	1.3	15.4	7.6	19.5	7.7	8.5	0.59	7.1	92.9	
10	98 Special Classification Provisions, Nesoi	206.6	1.2	41.1	24.9	-22.9	-26.2	-25.9	0.30	10.1	89.9	
11	38 Miscellaneous Chemical Products	181.1	1.0	47.4	35.5	12.2	7.6	8.8	0.38	25.1	74.9	
12	41 Raw Hides And Skins (No Furskins) And Leather	137.8	0.8	22.6	19.7	11.7	22.5	21.0	0.68	13.1	86.9	
13	95 Toys, Games & Sport Equipment; Parts & Accessories	137.4	0.8	13.3	10.7	-8.3	7.2	5.6	0.40	9.3	90.7	
14	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	128.5	0.7	-76.1	-37.2	-14.9	6.3	4.0	0.15	8.6	91.4	
15	28 Inorg Chem; Prec & Rare-Earth Met & Radioact Comp	120.5	0.7	32.2	36.5	13.0	5.2	6.5	0.33	17.7	82.3	
16	81 Base Metals Nesoi; Cermets; Articles Thereof	113.5	0.6	45.5	67.1	2.4	-4.4	-2.7	2.16	27.1	72.9	
17	49 Printed Books, Newspapers Etc; Manuscripts Etc	112.2	0.6	-35.8	-24.2	-1.4	-0.7	-0.9	0.54	23.5	76.5	
18	72 Iron And Steel	106.7	0.6	26.4	32.9	10.5	-3.1	-2.5	0.11	5.1	94.9	
19	73 Articles Of Iron Or Steel	82.5	0.5	9.6	13.1	4.0	-3.0	-1.9	0.12	16.9	83.1	
20	59 Impregnated Etc Text Fabrics; Tex Art For Industry	81.5	0.5	-10.7	-11.6	5.5	-3.2	-1.9	0.90	15.7	84.3	
		2001 (\$mil)	Industry	1998-01	% Growth 1998-2001					%Share of World 2001		
HS2	TOP 10 INCREASES 1998-2001	MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US	
1	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	5,462.1	31.2	1,548.3	39.6	11.5	27.2	23.8	0.78	19.5	80.5	
2	90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,293.4	18.8	767.1	30.4	24.6	21.6	22.5	2.21	31.3	68.7	
3	29 Organic Chemicals	279.7	1.6	168.2	150.9	11.0	19.0	17.6	0.21	15.6	84.4	
4	30 Pharmaceutical Products	495.7	2.8	166.0	50.4	69.1	39.3	43.6	0.51	17.2	82.8	
5	39 Plastics And Articles Thereof	681.1	3.9	126.8	22.9	14.9	8.4	9.6	0.42	18.4	81.6	
6	82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	310.6	1.8	62.0	24.9	1.8	5.5	4.8	1.54	16.8	83.2	
7	38 Miscellaneous Chemical Products	181.1	1.0	47.4	35.5	12.2	7.6	8.8	0.38	25.1	74.9	
8	81 Base Metals Nesoi; Cermets; Articles Thereof	113.5	0.6	45.5	67.1	2.4	-4.4	-2.7	2.16	27.1	72.9	
9	98 Special Classification Provisions, Nesoi	206.6	1.2	41.1	24.9	-22.9	-26.2	-25.9	0.30	10.1	89.9	
10	28 Inorg Chem; Prec & Rare-Earth Met & Radioact Comp	120.5	0.7	32.2	36.5	13.0	5.2	6.5	0.33	17.7	82.3	
		2001 (\$mil)	Industry	1998-01	% Growth 1998-2001					%Share of World 2001		
HS2	TOP 10 DECREASES 1998-2001	MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US	
1	84 Industrial Machinery, Including Computers	3,554.8	20.3	-1,188.0	-25.0	1.3	8.5	6.9	0.52	20.9	79.1	
2	37 Photographic Or Cinematographic Goods	79.9	0.5	-107.8	-57.4	-9.3	-2.1	-3.8	0.58	21.9	78.1	
3	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	128.5	0.7	-76.1	-37.2	-14.9	6.3	4.0	0.15	8.6	91.4	
4	93 Arms And Ammunition; Parts And Accessories Thereof	47.7	0.3	-46.5	-49.4	-4.7	-10.7	-8.9	1.58	31.7	68.3	
5	49 Printed Books, Newspapers Etc; Manuscripts Etc	112.2	0.6	-35.8	-24.2	-1.4	-0.7	-0.9	0.54	23.5	76.5	
6	76 Aluminum And Articles Thereof	56.4	0.3	-21.5	-27.6	-2.2	9.1	7.7	0.11	11.0	89.0	
7	35 Albuminoidal Subst; Modified Starch; Glue; Enzymes	49.1	0.3	-18.0	-26.9	0.6	9.7	7.9	0.55	18.3	81.7	
8	33 Essential Oils Etc; Perfumery, Cosmetic Etc Preps	59.9	0.3	-16.7	-21.8	15.9	17.9	17.6	0.22	15.6	84.4	
9	62 Apparel Articles And Accessories, Not Knit Etc.	16.4	0.1	-16.7	-50.4	-40.3	4.7	2.5	0.02	2.8	97.2	
10	60 Knitted Or Crocheted Fabrics	61.9	0.4	-14.4	-18.9	21.2	-0.7	0.7	0.61	7.3	92.7	

■ MA ■ US ■ non-US export growth exceeds World growth ■ World growth exceeds average World growth

4-Digit Highlights

- Massachusetts's top 20 4-digit HS commodities make up 57.1% of the state's total exports. In this set of commodities, Massachusetts' growth of 10.0% fell far behind both US growth of 16.4% and non-US growth of 29.1%. The state average was pulled down by huge losses in computers, computer/office machine parts, and turbojets/turbopropellers/gas turbines.
- Nevertheless, Massachusetts outperformed World growth in 13 of the 20 commodities, including some of the highest World growth sectors. In fact, all but 3 of the state's top 20 are commodities of high World growth.
- Massachusetts exports outpaced World shipments in 9 of the state's top 10 growth commodities. The state gain of 15.7% in its top ranked export commodity, integrated circuits, fell far behind the World increase of 36.7%.
- Only two of Massachusetts' top 10 declines by commodity were in high World growth sectors, including the state's second and third largest losses: computer/office machine parts and turbojets/turbopropellers/gas turbines. However, automatic data processing machines, the state's largest loss at -\$581 million, or -37.1%, represent an area of high (14.0%) non-US growth.
- Massachusetts specializes in all of its top 20 4-digit HS commodities. The state's highest market shares at this product group level are in razors and razor blades with 12% of the world market, hormones (6.5%), and oscilloscopes (6.2%). The US also specializes in 19 of the 20.

Table 10

Massachusetts, U.S., Non-U.S. and World Exports to Non-US Markets by 4-Digit HS Commodity Comparative Growth Rates 1998-2001 and World Market Shares 2001

Rank	HS4	Commodity Description	2001 (\$mil)		1998-01	% Growth 1998-2001				%Share of World 2001		
			MA Exports	Industry Share		MA \$Incr	MA	US	Non-US	World	MA	US
		TOTAL ALL HS COMMODITIES	17,490.1	100.0	1,611.9	10.2	5.9	12.7	11.6	0.37	15.3	84.7
		MA Total Top 20 Commodities	9,984.1	57.1	905.1	10.0	16.4	29.1	25.8	1.22	24.0	76.0
1	8542	Electronic Integrated Circuits & Microassembl, Pts	1,530.3	8.7	207.1	15.7	9.0	48.9	36.7	0.91	24.4	75.6
2	8517	Electric Apparatus For Line Telephony Etc, Parts	1,226.0	7.0	435.9	55.2	30.3	36.4	34.7	2.01	26.8	73.2
3	9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	1,162.9	6.6	248.3	27.2	34.7	16.6	23.2	4.56	40.1	59.9
4	8471	Automatic Data Process Machines; Magn Reader Etc	984.5	5.6	-580.7	-37.1	-1.6	14.0	11.0	0.69	17.1	82.9
5	8473	Parts Etc For Typewriters & Other Office Machines	757.6	4.3	-542.6	-41.7	0.9	31.6	24.6	0.72	18.6	81.4
6	9030	Oscilloscopes, Spectrum Analyzers Etc, Parts Etc	587.7	3.4	106.7	22.2	28.2	23.4	25.6	6.20	47.6	52.4
7	9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	402.4	2.3	121.5	43.3	22.1	30.1	26.6	3.96	41.9	58.1
8	8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	389.9	2.2	154.0	65.3	31.6	27.7	29.1	3.05	36.4	63.6
9	3004	Medicaments Nesoi, Mixed Or Not, In Dosage Etc Fm	344.3	2.0	170.8	98.4	109.5	42.6	49.6	0.45	14.7	85.3
10	8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	321.3	1.8	-193.6	-37.6	22.4	19.6	21.2	0.91	58.7	41.3
11	8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	283.1	1.6	155.9	122.5	27.8	31.8	31.1	1.07	18.2	81.8
12	8479	Machines Etc Having Individual Functions Nesoi, Pt	270.8	1.5	96.9	55.7	-3.2	13.4	9.0	0.97	23.2	76.8
13	8421	Centrifuges; Filter Etc Mach For Liq Or Gases; Pts	260.6	1.5	91.8	54.4	34.4	20.8	24.6	1.66	30.1	69.9
14	2937	Hormones; Derivatives & Steriods Used As Hormones	238.6	1.4	155.5	187.2	67.4	4.1	22.5	6.51	39.7	60.3
15	8212	Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	230.7	1.3	34.9	17.8	10.0	15.8	14.3	12.02	24.3	75.7
16	8518	Microphones; Loudspeakers; Sound Amplifier Etc, Pt	225.6	1.3	182.9	427.9	11.4	26.7	23.9	2.37	16.3	83.7
17	8524	Records, Tapes & Other Recorded Sound Media Etc	218.5	1.2	-76.0	-25.8	0.2	12.6	9.2	1.29	25.1	74.9
18	8529	Parts For Television, Radio And Radar Apparatus	185.5	1.1	84.3	83.2	22.0	40.3	36.8	0.66	16.7	83.3
19	8536	Electrical Apparatus For Switching Etc, Nov 1000 V	182.3	1.0	-22.8	-11.1	27.4	15.6	18.2	0.55	23.6	76.4
20	9032	Automatic Regulating Or Control Instruments; Parts	181.6	1.0	74.2	69.1	7.0	15.2	12.3	1.75	34.3	65.7
			2001 (\$mil)	Industry Share	1998-01	% Growth 1998-2001				%Share of World 2001		
	HS2	TOP 10 INCREASES 1998-2001	MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
1	8517	Electric Apparatus For Line Telephony Etc, Parts	1,226.0	7.0	435.9	55.2	30.3	36.4	34.7	2.01	26.8	73.2
2	9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	1,162.9	6.6	248.3	27.2	34.7	16.6	23.2	4.56	40.1	59.9
3	8542	Electronic Integrated Circuits & Microassembl, Pts	1,530.3	8.7	207.1	15.7	9.0	48.9	36.7	0.91	24.4	75.6
4	8518	Microphones; Loudspeakers; Sound Amplifier Etc, Pt	225.6	1.3	182.9	427.9	11.4	26.7	23.9	2.37	16.3	83.7
5	3004	Medicaments Nesoi, Mixed Or Not, In Dosage Etc Fm	344.3	2.0	170.8	98.4	109.5	42.6	49.6	0.45	14.7	85.3
6	8541	Semiconductor Devices; Light-Emit Diodes Etc, Pts	283.1	1.6	155.9	122.5	27.8	31.8	31.1	1.07	18.2	81.8
7	2937	Hormones; Derivatives & Steriods Used As Hormones	238.6	1.4	155.5	187.2	67.4	4.1	22.5	6.51	39.7	60.3
8	8543	Electrical Mach Etc, With Ind Functions Nesoi, Pts	389.9	2.2	154.0	65.3	31.6	27.7	29.1	3.05	36.4	63.6
9	8526	Radar Apparatus, Radio Navig Aid & Remote Cont App	149.5	0.9	142.6	2,062.9	24.9	23.8	24.2	4.85	39.5	60.5
10	9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	402.4	2.3	121.5	43.3	22.1	30.1	26.6	3.96	41.9	58.1
			2001 (\$mil)	Industry Share	1998-01	% Growth 1998-2001				%Share of World 2001		
	HS2	TOP 10 DECREASES 1998-2001	MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
1	8471	Automatic Data Process Machines; Magn Reader Etc	984.5	5.6	-580.7	-37.1	-1.6	14.0	11.0	0.69	17.1	82.9
2	8473	Parts Etc For Typewriters & Other Office Machines	757.6	4.3	-542.6	-41.7	0.9	31.6	24.6	0.72	18.6	81.4
3	8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	321.3	1.8	-193.6	-37.6	22.4	19.6	21.2	0.91	58.7	41.3
4	7106	Silver (Incl Prec Plated), Unwr, Semimfr Or Powder	11.2	0.1	-92.1	-89.2	-68.0	-8.0	-22.1	0.38	9.6	90.4
5	3702	Photo Film In Rolls Sensitized, Unexposed	6.7	0.0	-89.4	-93.0	-7.6	-7.2	-7.3	0.15	30.8	69.2
6	8524	Records, Tapes & Other Recorded Sound Media Etc	218.5	1.2	-76.0	-25.8	0.2	12.6	9.2	1.29	25.1	74.9
7	9306	Bombs, Grenades Etc; Cartridges Etc And Parts	34.8	0.2	-49.9	-59.0	-16.1	-31.7	-27.6	2.69	30.5	69.5
8	3920	Plates, Sheets, Film Etc No Ad, Non-Cel Etc, Plast	122.9	0.7	-43.1	-26.0	6.8	1.9	2.7	0.78	18.1	81.9
9	4901	Books, Brochures & Similar Printed Matter	73.5	0.4	-40.3	-35.4	0.2	4.1	3.0	0.81	26.2	73.8
10	8466	Parts Etc For Machine Tools Of Head 8456 To 8465	37.9	0.2	-38.7	-50.5	-2.3	-1.2	-1.4	0.57	18.6	81.4

■ MA ■ US ■ non-US export growth exceeds World growth ■ World growth exceeds average World growth

Highlights by World Region and Country:

- Despite the advantage of geography and NAFTA, both Massachusetts and the US trailed behind the rest of the World in export growth to Canada and Mexico from 1998-2001. The US still quite clearly dominates trade to these two countries, accounting for 63.9% of all world exports to Canada and 67.3% of all exports to Mexico, but is losing market share.
- Massachusetts had the clearest advantage over World counterparts in '98-'01 in Latin America, all of Europe, parts of Asia excluding Japan and China, and the African Continent, but lagged behind in North America, the Caribbean, the Asian Continent as a whole, sub-Saharan Africa, and in Australia.
- In Europe – the state's most important regional market – Massachusetts exporters did very well in comparison to US and international competitors. Six of the state's top 10 growth markets were in Europe. They were Ireland, Germany, France, the UK, Greece and Belgium. State exporters had higher growth than either US or non-US exporters in all of these markets. These gains outweighed losses in Netherlands, Finland, Sweden, and Spain.
- Massachusetts exporters also outperformed competitors in many parts of Asia. Markets of strength where local exporters were on a faster growth track than international competitors include Korea, Singapore, the Philippines, Hong Kong, and Malaysia. Massachusetts fell short of World growth in Japan and China and reported an export loss of 4.4% in Taiwan. UN data for Taiwan are not available.
- In Latin America, the Commonwealth also ran ahead of US and non-US export figures, showing particular strength in export growth to Central America. State exporters likewise surpassed US and non-US companies in the low volume market of Africa. In Australia and Oceania, state and US manufacturers both saw negative growth while non-US companies moved ahead with 12.7% growth in 1998-2001.
- The state surpassed World growth in all of its top growth markets except China, where World growth reached 73.7%. Massachusetts's largest advances by dollar value were in Ireland, Germany, and France. Four of the top 10, Ireland, Korea, China, and Malaysia, were markets of high World growth. Two of the state's top 10 losses, Indonesia and Spain, were markets of high World growth.
- Massachusetts maintains greater than average market shares in Canada, Central America, Japan, and in the ASEAN region of Asia, while the US specializes in all of North America, Latin America, Japan, and Australia. Non-US countries dominate trade throughout Europe, the Asian Continent as a whole, and in Africa.
- Among the state's top 20 destinations, Massachusetts' greatest individual country market shares are in Ireland, Philippines, and Canada.

Table 11
Massachusetts, U.S., Non-U.S. and World Exports to Non-US Markets by World Region
Comparative Growth Rates 1998-2001 and World Market Shares 2001

	2001 (\$mil)		1998-01					% Growth 1998-2001			%Share of World 2001		
	MA Exports	Region Share	MA \$incr	MA	US	Non-US	World	MA	US	Non-US	MA	US	Non-US
Total all Countries Excluding USA	17,490	100.0	1,612	10.2	6.8	12.7	11.7	0.37	15.4	84.6			
North America Excluding USA	3,415	19.5	-359	-9.5	16.6	48.7	26.1	0.83	65.2	34.8			
United States	0	0.0	0	NA	NA	25.0	25.0	NA	NA	100.0			
Canada	2,844	16.3	-459	-13.9	2.7	25.7	10.0	1.28	63.6	36.4			
Mexico	571	3.3	101	21.4	37.1	95.7	52.1	0.30	67.1	32.9			
Latin America	556	3.2	76	15.7	-13.3	-5.2	-7.5	0.32	26.9	73.1			
South America	445	2.5	45	11.3	-16.5	-8.7	-10.7	0.31	23.6	76.4			
Central America	97	0.6	32	50.4	-5.2	21.6	9.3	0.41	39.8	60.2			
Caribbean	14	0.1	-2	-12.1	1.7	34.7	16.3	0.19	48.9	51.1			
Europe	7,418	42.4	1,022	16.0	6.0	4.6	4.7	0.29	7.8	92.2			
Western Europe	7,309	41.8	1,016	16.1	6.4	4.7	4.9	0.31	8.1	91.9			
European Union	7,106	40.6	1,089	18.1	7.9	5.3	5.5	0.33	8.3	91.7			
Eastern Europe	109	0.6	6	6.3	-1.5	3.4	3.2	0.05	4.2	95.8			
Former Soviet Republics	40	0.2	2	6.3	-17.9	-19.7	-19.6	0.06	5.8	94.2			
Asian Continent	5,032	28.8	862	20.7	3.7	32.7	27.9	0.36	13.4	86.6			
Japan	1,964	11.2	110	6.0	-5.5	34.0	24.5	0.56	18.3	81.7			
Asia-Nics	1,410	8.1	305	27.6	4.0	22.9	20.3	0.31	12.0	88.0			
Asean	1,310	7.5	299	29.6	-0.3	24.7	20.2	0.42	14.9	85.1			
Asia Near East	326	1.9	73	28.9	2.9	13.2	11.6	0.32	13.8	86.2			
Asia-South	92	0.5	17	23.4	-17.6	23.7	20.0	0.15	6.0	94.0			
African Continent	106	0.6	6	6.3	-14.9	-4.6	-5.6	0.15	8.3	91.7			
Sub-Saharan Africa	53	0.3	-5	-8.9	-16.6	-4.3	-5.5	0.14	8.6	91.4			
Australia And Oceania	263	1.5	-25	-8.6	-12.2	12.7	7.3	0.34	17.6	82.4			
Other countries not reporting to UN	699	4.0	30	4.4	NA	NA	NA	NA	NA	NA			

■ MA ■ US ■ non-US export growth exceeds World growth ■ World growth exceeds average World growth

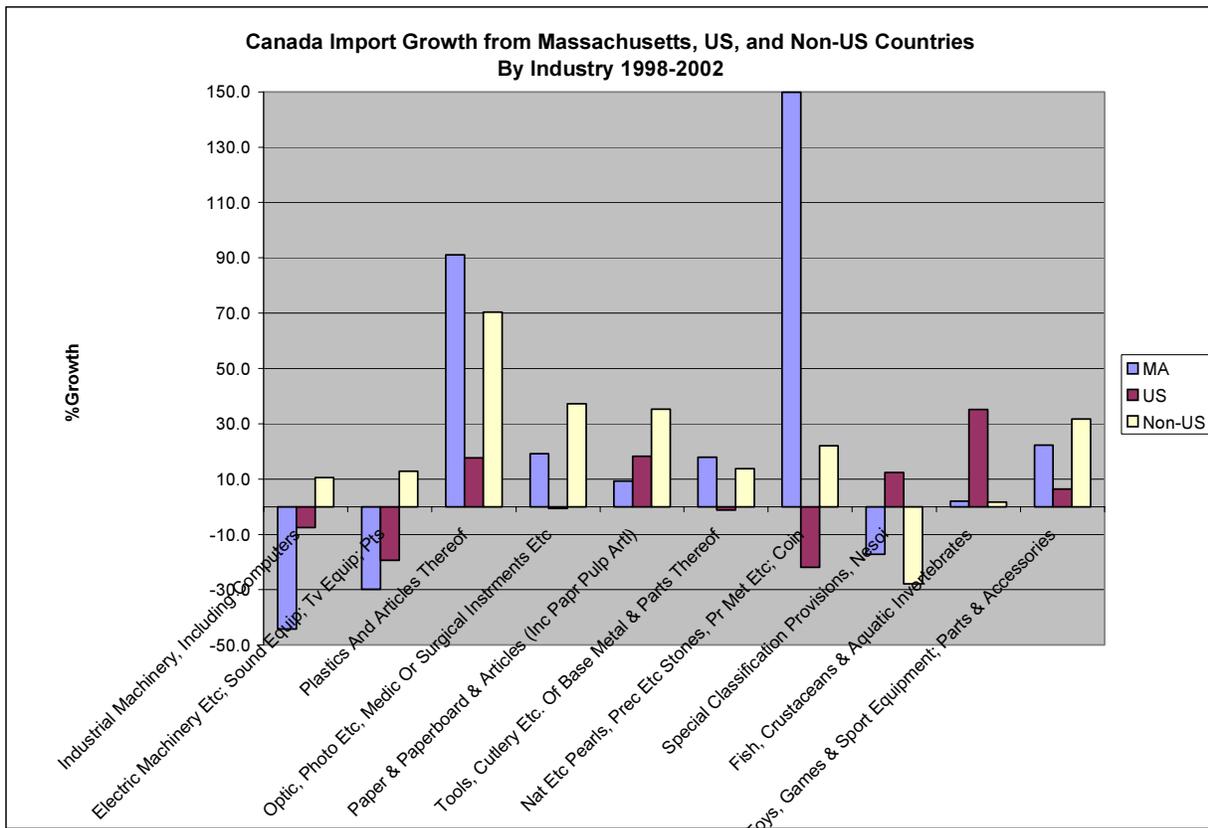
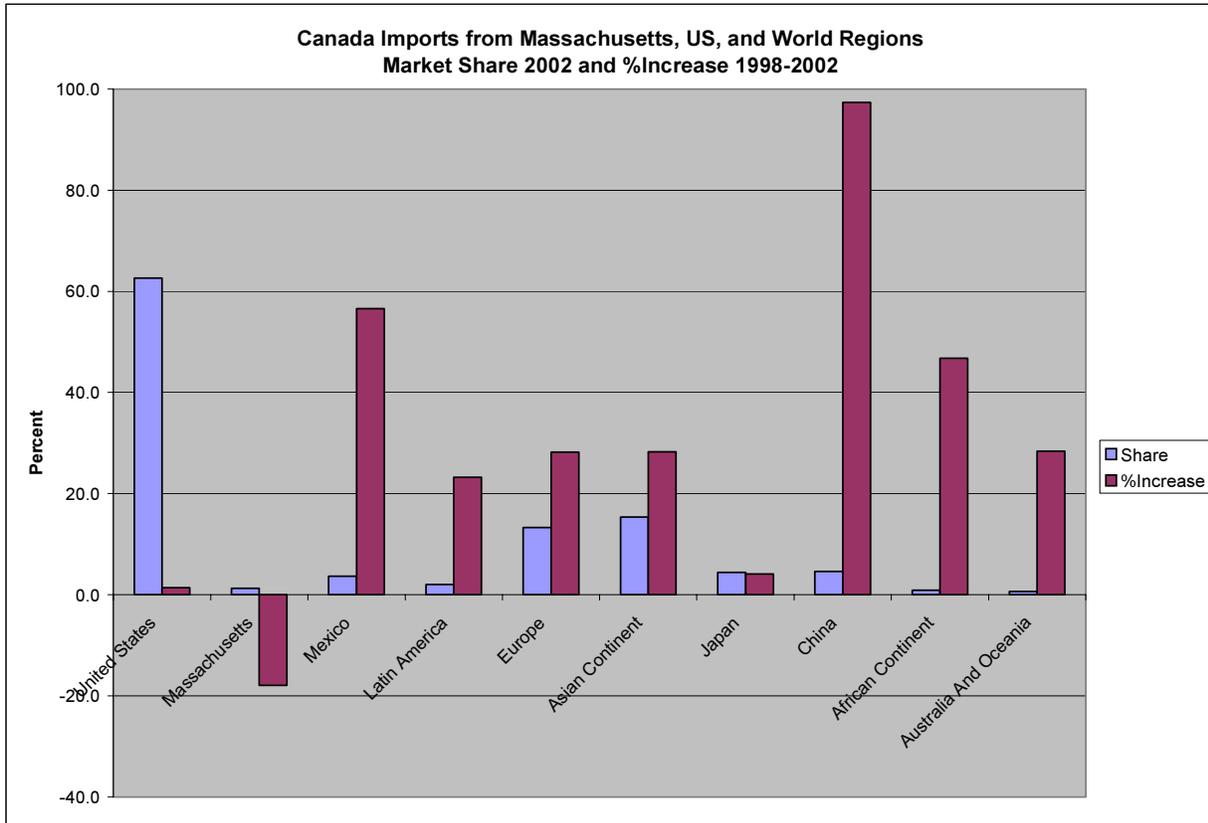
Table 12

**Massachusetts, U.S., Non-U.S. and World Exports to Non-US Markets by Country of Destination
Comparative Growth Rates 1998-2001 and World Market Shares 2001**

		2001 (\$mil)	Country	1998-01	% Growth 1998-2001				%Share of World 2001		
		MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
Rank	TOTAL ALL COUNTRIES	17,490.1	100.0	1,611.9	10.2	6.8	12.7	11.7	0.37	15.4	84.6
	MA Total Top 20 Countries	15,635.0	89.4	1,621.1	11.6	10.3	16.1	15.0	0.45	17.9	82.1
1	Canada	2,844.5	16.3	-459.1	-13.9	2.7	25.7	10.0	1.28	63.6	36.4
2	Japan	1,964.1	11.2	110.5	6.0	-5.5	34.0	24.5	0.56	18.3	81.7
3	United Kingdom	1,851.0	10.6	173.5	10.3	25.0	6.6	8.8	0.55	13.3	86.7
4	Germany	1,400.7	8.0	299.8	27.2	6.5	2.8	3.1	0.29	8.2	91.8
5	France	864.8	4.9	208.9	31.8	3.7	2.6	2.7	0.29	8.9	91.1
6	Netherlands	820.2	4.7	-91.4	-10.0	20.7	3.0	4.7	0.50	10.8	89.2
7	Ireland	699.5	4.0	314.3	81.6	9.2	17.0	15.8	1.36	15.2	84.8
8	Mexico	570.9	3.3	100.6	21.4	37.1	95.7	52.1	0.30	67.1	32.9
9	China (Taiwan)	512.6	2.9	-23.4	-4.4	na	na	na	na	na	na
10	Singapore	494.8	2.8	79.9	19.3	1.7	16.8	14.0	0.43	16.5	83.5
11	Korea, Republic Of	491.0	2.8	187.6	61.9	10.8	62.5	51.3	0.35	15.9	84.1
12	Philippines	426.2	2.4	131.3	44.5	-24.4	6.1	-0.5	1.36	16.6	83.4
13	China (Mainland)	425.3	2.4	139.2	48.7	55.3	76.2	73.7	0.17	10.8	89.2
14	Hong Kong	423.7	2.4	37.5	9.7	-2.6	9.0	8.2	0.21	6.7	93.3
15	Belgium	415.5	2.4	118.2	39.8	-12.8	11.4	9.5	0.23	6.4	93.6
16	Italy	380.7	2.2	42.9	12.7	5.2	9.7	9.5	0.16	4.9	95.1
17	Brazil	293.5	1.7	95.8	48.4	-5.0	-3.4	-3.8	0.50	23.2	76.8
18	Malaysia	285.4	1.6	112.5	65.1	3.3	32.3	26.5	0.39	16.2	83.8
19	Australia	237.6	1.4	-21.2	-8.2	-18.1	4.7	-0.3	0.39	18.0	82.0
20	Israel	232.9	1.3	63.6	37.6	24.5	20.4	21.2	0.70	20.1	79.9
		2001 (\$mil)	Country	1998-01	% Growth 1998-2001				%Share of World 2001		
		MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
Rank	TOP 10 INCREASES 1998-2001										
1	Ireland	699.5	4.0	314.3	81.6	9.2	17.0	15.8	1.36	15.2	84.8
2	Germany	1,400.7	8.0	299.8	27.2	6.5	2.8	3.1	0.29	8.2	91.8
3	France	864.8	4.9	208.9	31.8	3.7	2.6	2.7	0.29	8.9	91.1
4	Korea, Republic Of	491.0	2.8	187.6	61.9	10.8	62.5	51.3	0.35	15.9	84.1
5	United Kingdom	1,851.0	10.6	173.5	10.3	25.0	6.6	8.8	0.55	13.3	86.7
6	Greece	189.7	1.1	160.9	559.1	-29.7	-5.8	-6.9	0.67	3.5	96.5
7	China (Mainland)	425.3	2.4	139.2	48.7	55.3	76.2	73.7	0.17	10.8	89.2
8	Philippines	426.2	2.4	131.3	44.5	-24.4	6.1	-0.5	1.36	16.6	83.4
9	Belgium	415.5	2.4	118.2	39.8	-12.8	11.4	9.5	0.23	6.4	93.6
10	Malaysia	285.4	1.6	112.5	65.1	3.3	32.3	26.5	0.39	16.2	83.8
		2001 (\$mil)	Country	1998-01	% Growth 1998-2001				%Share of World 2001		
		MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
Rank	TOP 10 DECLINES 1998-2001										
1	Canada	2,844.5	16.3	-459.1	-13.9	2.7	25.7	10.0	1.28	63.6	36.4
2	Netherlands	820.2	4.7	-91.4	-10.0	20.7	3.0	4.7	0.50	10.8	89.2
3	Finland	55.4	0.3	-65.7	-54.3	-14.0	4.2	2.7	0.17	6.8	93.2
4	Sweden	170.9	1.0	-42.0	-19.7	-14.0	-7.0	-7.4	0.27	5.4	94.6
5	Turkey	26.5	0.2	-34.0	-56.2	-19.3	-8.9	-9.8	0.06	7.9	92.1
6	Switzerland	123.4	0.7	-32.5	-20.8	-0.8	5.5	5.0	0.15	6.7	93.3
7	Indonesia	19.5	0.1	-32.0	-62.1	-8.9	16.5	13.3	0.06	10.4	89.6
8	China (Taiwan)	512.6	2.9	-23.4	-4.4	na	na	na	na	na	na
9	Spain	123.4	0.7	-23.1	-15.8	-8.4	16.7	15.2	0.08	4.5	95.5
10	Australia	237.6	1.4	-21.2	-8.2	-18.1	4.7	-0.3	0.39	18.0	82.0

■MA ■US ■non-US export growth exceeds World growth ■World growth exceeds average World growth

VI. MASSACHUSETTS EXPORT PERFORMANCE AMONG WORLD COMPETITORS IN THE CANADIAN MARKET



Massachusetts's Export Performance among World Competitors in the Canadian Market

The figures in this table, provided to the United Nation's by Statistics Canada, offer a closer look at the state's largest foreign market from 2001-2002 and from 1998-2002. As with the UN data presented in the previous section, these tables enable us to see how Massachusetts exporters compare in performance to other US, Non-US, and World exporters to Canada.

2-Digit HS Highlights:

- World exporters appear to be making advances in Canada at the expense of both state and US exporters. While Canadian imports from Massachusetts were down 18.0% in 1998-2002 and imports from the US up a slight 1.4%, non-US exporters increased their shipments to Canada a robust 29.7% in the same period. Massachusetts exports fell 4.7% in 2002, while US exports dipped just 1.3% and non-US exports gained 3.2%.
- Nevertheless, the US still clearly dominates all other nations in exports to Canada as shown by the US share of World exports to the country in the last column on the right. In 2002, 62.6% of all Canadian imports came from the US. Canada also still remains of unquestioned importance to Massachusetts. As shown in the third column from the right, Massachusetts has very high market shares in many of its leading exports to Canada.
- Massachusetts losses are concentrated heavily in its two leading industries, machinery/computers and electric equipment, which make up 42% of the state's total sales to Canada. Losses in the two industries together exceed total annual and five-year losses. Only one other industry in the state's top 10 declined over five years and only 2 others declined in 2002.
- Detailed data from the UN show that China and Mexico reported the largest five-year gains in both machinery/computers and electrical equipment exports to Canada.
- The two leading annual and five-year gains for the Commonwealth were in plastics and precious metals/gemstones/jewelry. Instruments reported the third largest dollar increase from 1998-2002, but state shipments (up 19.2%) advanced at just over half the non-US rate (+37.3%). Paper/paperboard/articles and toys, games, and sporting goods, also among the state's top ranked growth sectors, have similarly lost market share to foreign competitors.
- Non-US exports grew faster than US exports in all but two of Massachusetts' top 20 industries in both 2002 and in 1998-2002. Massachusetts had a better record in many industries, outperforming foreign competitors in 8 industries in 2002 and 7 in 1998-2002.
- Massachusetts' greatest shares of total Canadian imports from the World were in impregnated textile fabric with 7.6% of the market, tools and cutlery 6.5%, and fish and crustaceans 4.9%.

4-Digit HS Highlights:

- Massachusetts's top 20 4-digit HS commodities comprise 45.4% of its total shipments to Canada. State exports of those commodities plunged 25% over five years, while World sales of the same products declined a smaller 6%, and non-US sales edged up 3%. Massachusetts had a 4.3% World market share in those commodities, compared to 1.2% overall.
- The state's greatest product losses over five years were in computers, integrated circuits, turbojets/turbopropellers/gas turbines, and computer/office machine parts. In 2002, there were broad declines in electric equipment including insulated wire and cable, adp (automatic data processing) power supplies, electrical apparatus for line telephony, transmission apparatus for radio telephony, and printed circuits. The US as a whole is suffering declines in many of the same high tech products, while non-US competitors are making strong gains. Integrated circuits are an exception with Canadian demand down over 50% from both the US and the rest of the world. Massachusetts faces primarily US competition, rather than foreign, in the turbojet commodity group.

- In spite of the overall declines, Massachusetts' export growth surpassed World growth in 15 of the 20 commodities in 2002 and in 10 in 1998-2002. The top two increases in both periods were in plastics in primary form: polyethers/epoxides/polyesters and polymers of styrene. Waste and scrap of precious metal, air or vacuum pumps, paper, paperboard, wad etc. coated, and razors also ranked among the leading growth products in both periods. Medical instruments had the third largest five-year increase.
- The Commonwealth outperformed World growth in 8 of its top 10 five-year growth commodities. Massachusetts faces tough US and World competition in the other two products: paper, paperboard, wad etc. coated and razors and razor blades.
- Massachusetts enjoys very high world market shares in many of its top 20 commodities. 76% of all Canadian razor and razor blade imports originate in Massachusetts, 18% of its polymers of styrene, and 17% of its uncoated paper and paperboard nesoi (not elsewhere specified or included).

Table 13: Canada Imports from Massachusetts, U.S., Non-U.S. and World by 2-Digit HS Commodity Comparative Growth Rates 2001-2002, 1998-2002 and World Market Shares 2002

HS2	Commodity Description	2002 (\$mil)		Industry Share	2001-02 % Growth 2001-2002					1998-02 % Growth 1998-2002					%Share of World 2002		
		MA Exports	Share		MA \$Incr	MA	US	Non-US	World	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
	TOTAL ALL HS COMMODITY CHAPTERS	2,709.9	100.0		-134.6	-4.7	-1.3	3.2	0.3	-593.7	-18.0	1.4	29.7	10.4	1.2	62.6	37.4
	MA Total Top 20 Chapters	2,341.2	86.4		-103.4	-4.2	-4.5	-0.2	-3.0	-449.4	-16.1	-2.4	17.8	4.0	2.1	63.9	36.1
1	84 Industrial Machinery, Including Computers	615.0	22.7		-162.6	-20.9	-5.5	0.0	-3.7	-488.9	-44.3	-7.5	10.5	-2.2	1.6	66.5	33.5
2	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	514.3	19.0		-111.1	-17.8	-13.8	-6.4	-10.4	-219.4	-29.9	-19.4	12.9	-6.7	2.2	52.5	47.5
3	39 Plastics And Articles Thereof	258.1	9.5		112.1	76.7	4.4	16.3	6.2	123.0	91.1	17.6	70.4	24.0	3.2	83.5	16.5
4	90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	213.7	7.9		1.3	0.6	-9.2	-3.4	-7.2	34.4	19.2	-0.6	37.3	10.3	2.9	64.1	35.9
5	48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	161.7	6.0		9.1	6.0	-0.6	15.6	1.5	13.7	9.3	18.2	35.3	20.5	3.9	84.9	15.1
6	82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	92.4	3.4		10.7	13.1	4.1	11.9	7.2	14.0	17.9	-1.2	13.8	4.4	6.5	59.0	41.0
7	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	69.3	2.6		33.0	91.0	7.2	15.7	11.4	41.5	149.9	-21.9	22.1	-4.2	4.3	48.8	51.2
8	98 Special Classification Provisions, Nesoi	61.7	2.3		-6.4	-9.4	-8.4	-24.4	-15.3	-12.9	-17.3	12.4	-27.9	-7.4	1.5	61.8	38.2
9	03 Fish, Crustaceans & Aquatic Invertebrates	50.5	1.9		-0.2	-0.4	0.8	-6.2	-3.0	1.0	2.0	35.2	1.6	15.0	4.9	46.9	53.1
10	95 Toys, Games & Sport Equipment; Parts & Accessories	48.0	1.8		1.2	2.6	7.5	11.6	10.3	8.8	22.3	6.4	31.7	22.6	1.9	31.5	68.5
11	73 Articles Of Iron Or Steel	33.5	1.2		-0.5	-1.6	-1.5	11.1	1.9	11.1	49.9	1.4	27.4	7.8	0.7	70.6	29.4
12	59 Impregnated Etc Text Fabrics; Tex Art For Industry	30.3	1.1		7.2	31.1	0.6	20.6	4.0	-9.0	-22.9	-10.5	38.7	-3.8	7.6	80.4	19.6
13	33 Essential Oils Etc; Perfumery, Cosmetic Etc Preps	26.9	1.0		-1.2	-4.3	12.0	20.6	13.9	-6.0	-18.2	37.4	72.2	44.1	1.9	77.0	23.0
14	54 Manmade Filaments, Including Yarns & Woven Fabric	26.6	1.0		2.7	11.3	-3.7	10.5	0.6	17.2	182.6	-7.3	-6.3	-7.0	4.2	66.9	33.1
15	32 Tanning & Dye Ext Etc; Dye, Paint, Putty Etc; Inks	25.1	0.9		-3.5	-12.2	2.6	13.4	4.3	9.1	57.1	14.4	17.1	14.8	1.8	82.6	17.4
16	38 Miscellaneous Chemical Products	24.0	0.9		-1.8	-7.0	1.4	1.9	1.5	-6.5	-21.3	4.1	10.6	5.0	1.1	84.4	15.6
17	30 Pharmaceutical Products	23.5	0.9		2.3	10.9	8.9	17.7	13.3	7.2	44.2	63.3	132.5	92.6	0.5	48.8	51.2
18	64 Footwear, Gaiters Etc. And Parts Thereof	23.0	0.8		0.4	1.9	-10.7	5.3	4.5	6.3	38.1	-28.2	14.0	11.1	2.2	4.4	95.6
19	35 Albuminoid Subst; Modified Starch; Glue; Enzymes	21.9	0.8		3.6	19.3	7.2	20.7	11.1	3.1	16.6	20.6	118.6	40.6	4.6	68.3	31.7
20	76 Aluminum And Articles Thereof	21.8	0.8		0.4	1.9	3.8	9.8	4.6	2.6	13.7	7.7	34.5	10.6	0.9	86.8	13.2
	TOP 10 INCREASES 2001-2002																
1	39 Plastics And Articles Thereof	258.1	9.5		112.1	76.7	4.4	16.3	6.2	123.0	91.1	17.6	70.4	24.0	3.2	83.5	16.5
2	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	69.3	2.6		33.0	91.0	7.2	15.7	11.4	41.5	149.9	-21.9	22.1	-4.2	4.3	48.8	51.2
3	82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	92.4	3.4		10.7	13.1	4.1	11.9	7.2	14.0	17.9	-1.2	13.8	4.4	6.5	59.0	41.0
4	48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	161.7	6.0		9.1	6.0	-0.6	15.6	1.5	13.7	9.3	18.2	35.3	20.5	3.9	84.9	15.1
5	59 Impregnated Etc Text Fabrics; Tex Art For Industry	30.3	1.1		7.2	31.1	0.6	20.6	4.0	-9.0	-22.9	-10.5	38.7	-3.8	7.6	80.4	19.6
6	16 Edible Preparations Of Meat, Fish, Crustaceans Etc	15.7	0.6		4.6	40.8	0.0	14.4	4.5	8.2	110.2	22.7	4.8	16.0	3.0	65.8	34.2
7	22 Beverages, Spirits And Vinegar	17.8	0.7		4.3	31.4	-9.0	7.6	2.4	0.8	4.5	12.7	41.7	32.2	1.3	27.8	72.2
8	21 Miscellaneous Edible Preparations	9.5	0.4		4.0	72.0	15.0	8.8	14.1	7.3	330.9	21.8	1.7	18.5	1.2	86.0	14.0
9	49 Printed Books, Newspapers Etc; Manuscripts Etc	21.3	0.8		3.7	20.8	-1.6	12.0	0.5	-32.7	-60.6	-5.6	26.9	-1.2	1.0	82.7	17.3
10	19 Prep Cereal, Flour, Starch Or Milk; Bakers Wares	9.5	0.4		3.6	61.0	6.0	9.8	6.7	5.6	145.0	34.2	24.4	32.4	0.9	82.6	17.4

■ MA ■ US ■ non-US export growth exceeds World growth or ■ World growth exceeds average World growth

Table 13 (continued): Canada Imports from Massachusetts, U.S., Non-U.S. and World by 2-Digit HS Commodity
Comparative Growth Rates 2001-2002, 1998-2002 and World Market Shares 2002

		2002 (\$mil)	Industry	2001-02 % Growth 2001-2002					1998-02 % Growth 1998-2002					%Share of World 2002		
HS2	TOP 10 INCREASES 1998-2002	MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
1	39 Plastics And Articles Thereof	258.1	9.5	112.1	76.7	4.4	16.3	6.2	123.0	91.1	17.6	70.4	24.0	3.2	83.5	16.5
2	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	69.3	2.6	33.0	91.0	7.2	15.7	11.4	41.5	149.9	-21.9	22.1	-4.2	4.3	48.8	51.2
3	90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	213.7	7.9	1.3	0.6	-9.2	-3.4	-7.2	34.4	19.2	-0.6	37.3	10.3	2.9	64.1	35.9
4	54 Manmade Filaments, Including Yarns & Woven Fabric	26.6	1.0	2.7	11.3	-3.7	10.5	0.6	17.2	182.6	-7.3	-6.3	-7.0	4.2	66.9	33.1
5	82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	92.4	3.4	10.7	13.1	4.1	11.9	7.2	14.0	17.9	-1.2	13.8	4.4	6.5	59.0	41.0
6	48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	161.7	6.0	9.1	6.0	-0.6	15.6	1.5	13.7	9.3	18.2	35.3	20.5	3.9	84.9	15.1
7	73 Articles Of Iron Or Steel	33.5	1.2	-0.5	-1.6	-1.5	11.1	1.9	11.1	49.9	1.4	27.4	7.8	0.7	70.6	29.4
8	32 Tanning & Dye Ext Etc; Dye, Paint, Putty Etc; Inks	25.1	0.9	-3.5	-12.2	2.6	13.4	4.3	9.1	57.1	14.4	17.1	14.8	1.8	82.6	17.4
9	95 Toys, Games & Sport Equipment; Parts & Accessories	48.0	1.8	1.2	2.6	7.5	11.6	10.3	8.8	22.3	6.4	31.7	22.6	1.9	31.5	68.5
10	16 Edible Preparations Of Meat, Fish, Crustaceans Etc	15.7	0.6	4.6	40.8	0.0	14.4	4.5	8.2	110.2	22.7	4.8	16.0	3.0	65.8	34.2
		2002 (\$mil)	Industry	2001-02 % Growth 2001-2002					1998-02 % Growth 1998-2002					%Share of World 2002		
HS2	TOP 10 DECREASES 2001-2002	MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
1	84 Industrial Machinery, Including Computers	615.0	22.7	-162.6	-20.9	-5.5	0.0	-3.7	-488.9	-44.3	-7.5	10.5	-2.2	1.6	66.5	33.5
2	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	514.3	19.0	-111.1	-17.8	-13.8	-6.4	-10.4	-219.4	-29.9	-19.4	12.9	-6.7	2.2	52.5	47.5
3	60 Knitted Or Crocheted Fabrics	14.9	0.5	-10.6	-41.7	-22.0	-3.0	-13.4	-19.4	-56.5	-35.7	10.8	-18.3	5.4	49.3	50.7
4	37 Photographic Or Cinematographic Goods	10.3	0.4	-10.3	-49.8	0.8	3.3	1.5	-19.0	-64.8	3.9	-26.1	-7.2	1.6	70.7	29.3
5	70 Glass And Glassware	3.4	0.1	-8.3	-71.1	-3.2	18.0	0.9	-0.5	-12.6	12.2	40.2	17.5	0.2	77.5	22.5
6	98 Special Classification Provisions, Nesoi	61.7	2.3	-6.4	-9.4	-8.4	-24.4	-15.3	-12.9	-17.3	12.4	-27.9	-7.4	1.5	61.8	38.2
7	47 Pulp Of Wood Etc; Waste Etc Of Paper & Paperboard	8.5	0.3	-5.4	-38.7	13.9	-22.6	8.6	-0.4	-4.3	12.9	11.7	12.8	2.2	89.6	10.4
8	20 Prep Vegetables, Fruit, Nuts Or Other Plant Parts	19.9	0.7	-4.6	-18.9	4.9	16.4	8.7	-0.9	-4.1	7.1	22.6	12.2	2.2	64.2	35.8
9	94 Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab Bd	19.3	0.7	-4.0	-17.1	-10.4	26.7	4.1	-10.4	-35.0	-7.0	92.7	23.4	0.5	52.5	47.5
10	55 Manmade Staple Fibers, Incl Yarns & Woven Fabrics	3.3	0.1	-3.7	-52.5	-10.6	-1.9	-7.5	-9.6	-74.4	-15.7	-25.3	-19.6	0.8	62.5	37.5
		2002 (\$mil)	Industry	2001-02 % Growth 2001-2002					1998-02 % Growth 1998-2002					%Share of World 2002		
HS2	TOP 10 DECREASES 1998-2002	MA Exports	Share	MA \$Incr	MA	US	Non-US	World	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
1	84 Industrial Machinery, Including Computers	615.0	22.7	-162.6	-20.9	-5.5	0.0	-3.7	-488.9	-44.3	-7.5	10.5	-2.2	1.6	66.5	33.5
2	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	514.3	19.0	-111.1	-17.8	-13.8	-6.4	-10.4	-219.4	-29.9	-19.4	12.9	-6.7	2.2	52.5	47.5
3	49 Printed Books, Newspapers Etc; Manuscripts Etc	21.3	0.8	3.7	20.8	-1.6	12.0	0.5	-32.7	-60.6	-5.6	26.9	-1.2	1.0	82.7	17.3
4	60 Knitted Or Crocheted Fabrics	14.9	0.5	-10.6	-41.7	-22.0	-3.0	-13.4	-19.4	-56.5	-35.7	10.8	-18.3	5.4	49.3	50.7
5	37 Photographic Or Cinematographic Goods	10.3	0.4	-10.3	-49.8	0.8	3.3	1.5	-19.0	-64.8	3.9	-26.1	-7.2	1.6	70.7	29.3
6	74 Copper And Articles Thereof	5.2	0.2	-2.0	-27.4	-12.0	6.3	-6.9	-14.0	-72.8	-26.4	75.1	-9.5	0.8	67.8	32.2
7	98 Special Classification Provisions, Nesoi	61.7	2.3	-6.4	-9.4	-8.4	-24.4	-15.3	-12.9	-17.3	12.4	-27.9	-7.4	1.5	61.8	38.2
8	96 Miscellaneous Manufactured Articles	3.6	0.1	-1.1	-24.3	-4.8	5.6	0.6	-11.3	-75.9	-7.7	25.0	7.6	0.8	45.4	54.6
9	94 Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab Bd	19.3	0.7	-4.0	-17.1	-10.4	26.7	4.1	-10.4	-35.0	-7.0	92.7	23.4	0.5	52.5	47.5
10	55 Manmade Staple Fibers, Incl Yarns & Woven Fabrics	3.3	0.1	-3.7	-52.5	-10.6	-1.9	-7.5	-9.6	-74.4	-15.7	-25.3	-19.6	0.8	62.5	37.5

■ MA ■ US ■ non-US export growth exceeds World growth ■ World growth exceeds average World growth

**Table 14: Canada Imports from Massachusetts, U.S., Non-U.S. and World by 4-Digit HS Commodity
Comparative Growth Rates 2001-2002, 1998-2002 and World Market Shares 2002**

Rank	HS4	Commodity Description	2002 (\$mil)		Industry Share	2001-02 % Growth 2001-2002					1998-02 % Growth 1998-2002					%Share of World 2002		
			MA Exports	Share		MA \$Incr	MA	US	Non-US	World	MA \$Incr	MA	US	Non-US	World	MA	US	Non-US
		TOTAL ALL HS COMMODITIES	2,709.9	100.0		-134.6	-4.7	-1.3	3.2	0.3	-593.7	-18.0	1.4	29.7	10.4	1.2	62.6	37.4
		MA Total Top 20 Commodities	1,231.6	45.4		-53.3	-4.1	-11.7	-10.1	-11.0	-408.9	-24.9	-11.2	3.0	-5.9	4.3	58.9	41.1
1	8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	203.6	7.5		14.5	7.7	-4.6	-21.3	-10.1	-122.3	-37.5	22.9	0.1	15.3	8.3	71.0	29.0
2	8542	Electronic Integrated Circuits & Microassembl, Pts	155.7	5.7		-3.9	-2.4	-26.3	-38.4	-33.4	-135.8	-46.6	-52.6	-56.7	-54.9	6.1	45.7	54.3
3	8471	Automatic Data Process Machines; Magn Reader Etc	125.5	4.6		-123.6	-49.6	-16.2	4.0	-6.3	-264.7	-67.8	-26.4	8.6	-10.8	2.0	45.8	54.2
4	8212	Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	75.1	2.8		9.2	13.9	6.3	139.1	12.0	13.9	22.7	27.6	83.9	31.3	76.0	90.7	9.3
5	9018	Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	69.1	2.5		3.1	4.7	-7.9	7.1	-3.8	35.3	104.4	17.0	66.6	28.6	6.5	69.8	30.2
6	8473	Parts Etc For Typewriters & Other Office Machines	65.0	2.4		-75.7	-53.8	-30.2	-13.6	-21.1	-94.3	-59.2	-16.2	40.0	10.3	2.4	40.1	59.9
7	3907	Polyethers, Exopoxides & Polyesters, Primary Forms	61.8	2.3		56.7	1,125.2	0.1	-4.1	-0.2	60.0	3,368.3	3.0	6.1	3.2	9.0	93.5	6.5
8	3903	Polymers Of Styrene, In Primary Forms	56.2	2.1		46.9	505.5	-0.3	37.2	2.3	48.9	675.6	7.7	62.4	11.1	18.0	90.8	9.2
9	8536	Electrical Apparatus For Switching Etc, Nov 1000 V	51.7	1.9		-2.2	-4.1	-11.1	1.7	-7.0	-1.1	-2.0	-5.8	27.6	3.6	3.4	65.3	34.7
10	4811	Paper, Paperboard, Wad Etc, Coat Etc Nesoi, RI Etc	47.0	1.7		11.6	33.0	10.2	21.6	11.6	14.5	44.5	52.1	53.6	52.3	9.8	86.4	13.6
11	8524	Records, Tapes & Other Recorded Sound Media Etc	44.3	1.6		11.5	35.0	0.5	10.2	1.6	-12.4	-21.8	-4.6	6.6	-3.3	3.8	87.7	12.3
12	9027	Inst Etc For Physical Etc Anal Etc; Microtome; Pts	38.4	1.4		2.4	6.7	-5.9	-7.9	-6.7	11.7	43.7	22.9	77.7	38.3	7.4	64.1	35.9
13	7112	Waste & Scrap Of Prec Metal Or Other Cont Prec Mtl	35.6	1.3		22.7	174.7	42.1	-49.0	32.3	34.7	3,748.4	73.4	-46.1	58.8	8.4	95.9	4.1
14	4805	Paper & Paperboard, Uncoat, Nesoi, Rolls Or Sheets	34.2	1.3		1.2	3.6	-10.7	-1.7	-10.0	11.9	53.2	3.9	-42.0	-3.2	16.9	90.6	9.4
15	8517	Electric Apparatus For Line Telephony Etc, Parts	32.2	1.2		-19.3	-37.5	-36.4	-16.3	-24.6	-31.4	-49.3	-41.9	125.0	12.7	1.5	34.7	65.3
16	8544	Insulated Wire, Cable Etc; Opt Sheath Fib Cables	28.3	1.0		-23.5	-45.4	-4.0	-7.6	-5.3	-13.7	-32.7	22.5	-12.4	7.4	1.6	64.8	35.2
17	8481	Taps, Cocks, Valves Etc For Pipes, Tanks Etc, Pts	28.2	1.0		-0.1	-0.2	-5.9	3.9	-3.0	0.4	1.6	3.3	19.4	7.9	1.8	68.1	31.9
18	8501	Electric Motors And Generators (No Sets)	26.7	1.0		-1.3	-4.5	-5.3	25.3	5.4	13.1	97.1	3.5	56.6	20.4	3.3	58.5	41.5
19	3920	Plates, Sheets, Film Etc No Ad, Non-Cel Etc, Plast	26.6	1.0		5.3	25.0	6.7	15.7	7.9	5.1	23.9	10.0	47.7	13.9	2.8	86.4	13.6
20	8414	Air Or Vac Pumps, Compr & Fans; Hoods & Fans; Pts	26.5	1.0		11.2	73.4	-17.2	15.2	-8.0	17.2	186.2	-21.1	58.4	-4.0	2.6	64.4	35.6
		TOP 10 INCREASES 2001-2002																
		HS2 TOP 10 INCREASES 2001-2002																
1	3907	Polyethers, Exopoxides & Polyesters, Primary Forms	61.8	2.3		56.7	1,125.2	0.1	-4.1	-0.2	60.0	3,368.3	3.0	6.1	3.2	9.0	93.5	6.5
2	3903	Polymers Of Styrene, In Primary Forms	56.2	2.1		46.9	505.5	-0.3	37.2	2.3	48.9	675.6	7.7	62.4	11.1	18.0	90.8	9.2
3	7112	Waste & Scrap Of Prec Metal Or Other Cont Prec Mtl	35.6	1.3		22.7	174.7	42.1	-49.0	32.3	34.7	3,748.4	73.4	-46.1	58.8	8.4	95.9	4.1
4	8411	Turbojets, Turbopropellers & Oth Gas Turbines, Pts	203.6	7.5		14.5	7.7	-4.6	-21.3	-10.1	-122.3	-37.5	22.9	0.1	15.3	8.3	71.0	29.0
5	9022	X-Ray Etc Apparatus; Tubes, Panels, Screen Etc, Pt	15.5	0.6		12.3	383.2	19.0	29.0	24.0	10.9	242.5	24.7	65.4	43.2	6.1	47.6	52.4
6	4811	Paper, Paperboard, Wad Etc, Coat Etc Nesoi, RI Etc	47.0	1.7		11.6	33.0	10.2	21.6	11.6	14.5	44.5	52.1	53.6	52.3	9.8	86.4	13.6
7	8524	Records, Tapes & Other Recorded Sound Media Etc	44.3	1.6		11.5	35.0	0.5	10.2	1.6	-12.4	-21.8	-4.6	6.6	-3.3	3.8	87.7	12.3
8	8414	Air Or Vac Pumps, Compr & Fans; Hoods & Fans; Pts	26.5	1.0		11.2	73.4	-17.2	15.2	-8.0	17.2	186.2	-21.1	58.4	-4.0	2.6	64.4	35.6
9	8212	Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	75.1	2.8		9.2	13.9	6.3	139.1	12.0	13.9	22.7	27.6	83.9	31.3	76.0	90.7	9.3
10	8418	Refrigerators, Freezers Etc; Heat Pumps Nesoi, Pts	10.8	0.4		8.1	297.2	14.0	48.2	18.7	9.7	941.0	13.3	147.8	24.8	1.6	83.0	17.0

■ MA ■ US ■ non-US export growth exceeds World growth ■ World growth exceeds average World growth

**Table 14 (cont'd): Canada Imports from Massachusetts, U.S., Non-U.S. and World by 4-Digit HS Commodity
Comparative Growth Rates 2001-2002, 1998-2002 and World Market Shares 2002 (cont'd)**

		2002 (\$mil)		Industry	2001-02					% Growth 2001-2002					1998-02					% Growth 1998-2002					%Share of World 2002		
HS2	TOP 10 INCREASES 1998-2002	MA Exports	Share	MA \$incr	MA	US	Non-US	World	MA \$incr	MA	US	Non-US	World	MA \$incr	MA	US	Non-US	World	MA	US	Non-US						
1	3907 Polyethers, Exopoxides & Polyesters, Primary Forms	61.8	2.3	56.7	1,125.2	0.1	-4.1	-0.2	60.0	3,368.3	3.0	6.1	3.2	9.0	93.5	6.5											
2	3903 Polymers Of Styrene, In Primary Forms	56.2	2.1	46.9	505.5	-0.3	37.2	2.3	48.9	675.6	7.7	62.4	11.1	18.0	90.8	9.2											
3	9018 Medical, Surgical, Dental Or Vet Inst, No Elec, Pt	69.1	2.5	3.1	4.7	-7.9	7.1	-3.8	35.3	104.4	17.0	66.6	28.6	6.5	69.8	30.2											
4	7112 Waste & Scrap Of Prec Metal Or Other Cont Prec Mtl	35.6	1.3	22.7	174.7	42.1	-49.0	32.3	34.7	3,748.4	73.4	-46.1	58.8	8.4	95.9	4.1											
5	8414 Air Or Vac Pumps, Compr & Fans; Hoods & Fans; Pts	26.5	1.0	11.2	73.4	-17.2	15.2	-8.0	17.2	186.2	-21.1	58.4	-4.0	2.6	64.4	35.6											
6	5407 Woven Fab Of Syn Fil Yn, Incl Monofil 67 Dec Etc	19.5	0.7	1.1	5.9	-4.5	7.6	0.4	16.2	491.2	15.2	-0.4	7.9	8.1	56.4	43.6											
7	7102 Diamonds, Worked Or Not, Not Mounted Or Set	17.8	0.7	7.3	68.9	42.5	18.0	21.9	15.8	791.0	61.5	32.3	36.9	7.8	18.4	81.6											
8	4811 Paper, Paperboard, Wad Etc, Coat Etc Nesoi, RI Etc	47.0	1.7	11.6	33.0	10.2	21.6	11.6	14.5	44.5	52.1	53.6	52.3	9.8	86.4	13.6											
9	8212 Razors & Razor Blades (Incl Blade Blanks), B Mt Pt	75.1	2.8	9.2	13.9	6.3	139.1	12.0	13.9	22.7	27.6	83.9	31.3	76.0	90.7	9.3											
10	8501 Electric Motors And Generators (No Sets)	26.7	1.0	-1.3	-4.5	-5.3	25.3	5.4	13.1	97.1	3.5	56.6	20.4	3.3	58.5	41.5											
		2002 (\$mil)		Industry	2001-02					% Growth 2001-2002					1998-02					% Growth 1998-2002					%Share of World 2002		
HS2	TOP 10 DECREASES 2001-2002	MA Exports	Share	MA \$incr	MA	US	Non-US	World	MA \$incr	MA	US	Non-US	World	MA \$incr	MA	US	Non-US	World	MA	US	Non-US						
1	8471 Automatic Data Process Machines; Magn Reader Etc	125.5	4.6	-123.6	-49.6	-16.2	4.0	-6.3	-264.7	-67.8	-26.4	8.6	-10.8	2.0	45.8	54.2											
2	8473 Parts Etc For Typewriters & Other Office Machines	65.0	2.4	-75.7	-53.8	-30.2	-13.6	-21.1	-94.3	-59.2	-16.2	40.0	10.3	2.4	40.1	59.9											
3	8544 Insulated Wire, Cable Etc; Opt Sheath Fib Cables	28.3	1.0	-23.5	-45.4	-4.0	-7.6	-5.3	-13.7	-32.7	22.5	-12.4	7.4	1.6	64.8	35.2											
4	8504 Elec Trans, Static Conv & Induct, Adp Pwr Supp, Pt	21.1	0.8	-22.7	-51.9	-23.9	-1.4	-13.0	-10.8	-33.8	-16.7	38.0	6.6	2.4	44.8	55.2											
5	8517 Electric Apparatus For Line Telephony Etc, Parts	32.2	1.2	-19.3	-37.5	-36.4	-16.3	-24.6	-31.4	-49.3	-41.9	125.0	12.7	1.5	34.7	65.3											
6	8525 Trans Appar For Radiotele Etc; Tv Camera & Rec	8.5	0.3	-18.0	-68.0	-17.3	33.2	13.8	-1.6	-16.2	-44.9	309.0	46.4	0.5	27.9	72.1											
7	6001 Pile Fabrics, Knitted Or Crocheted	13.3	0.5	-10.3	-43.5	-48.7	-11.7	-35.5	-19.2	-59.0	-60.6	-11.0	-45.9	27.1	51.2	48.8											
8	3701 Photo Plates & Film, Flat, Sensitized, Unexposed	8.7	0.3	-10.0	-53.5	-18.4	6.9	-9.7	-18.5	-68.1	-36.1	-8.7	-27.3	7.2	59.5	40.5											
9	8534 Printed Circuits	9.3	0.3	-9.7	-51.0	-32.8	4.2	-24.5	-2.8	-23.0	-25.6	26.2	-14.8	1.4	69.1	30.9											
10	4703 Chemical Woodpulp, Soda Or Sulfate, Not Dissoly Gr	0.0	0.0	-9.6	-99.6	10.2	-26.3	-6.9	-0.2	-84.5	1.6	7.6	3.7	0.0	62.9	37.1											
		2002 (\$mil)		Industry	2001-02					% Growth 2001-2002					1998-02					% Growth 1998-2002					%Share of World 2002		
HS2	TOP 10 DECREASES 1998-2002	MA Exports	Share	MA \$incr	MA	US	Non-US	World	MA \$incr	MA	US	Non-US	World	MA \$incr	MA	US	Non-US	World	MA	US	Non-US						
1	8471 Automatic Data Process Machines; Magn Reader Etc	125.5	4.6	-123.6	-49.6	-16.2	4.0	-6.3	-264.7	-67.8	-26.4	8.6	-10.8	2.0	45.8	54.2											
2	8542 Electronic Integrated Circuits & Microassembl, Pts	155.7	5.7	-3.9	-2.4	-26.3	-38.4	-33.4	-135.8	-46.6	-52.6	-56.7	-54.9	6.1	45.7	54.3											
3	8411 Turbojets, Turbopropellers & Oth Gas Turbines, Pts	203.6	7.5	14.5	7.7	-4.6	-21.3	-10.1	-122.3	-37.5	22.9	0.1	15.3	8.3	71.0	29.0											
4	8473 Parts Etc For Typewriters & Other Office Machines	65.0	2.4	-75.7	-53.8	-30.2	-13.6	-21.1	-94.3	-59.2	-16.2	40.0	10.3	2.4	40.1	59.9											
5	4901 Books, Brochures & Similar Printed Matter	14.8	0.5	4.3	41.2	3.5	17.4	6.6	-35.1	-70.4	-12.0	28.3	-4.7	1.5	75.5	24.5											
6	8517 Electric Apparatus For Line Telephony Etc, Parts	32.2	1.2	-19.3	-37.5	-36.4	-16.3	-24.6	-31.4	-49.3	-41.9	125.0	12.7	1.5	34.7	65.3											
7	6001 Pile Fabrics, Knitted Or Crocheted	13.3	0.5	-10.3	-43.5	-48.7	-11.7	-35.5	-19.2	-59.0	-60.6	-11.0	-45.9	27.1	51.2	48.8											
8	8475 Machines For Assemb Elec Tubes Etc & Glass Mfr, Pt	0.9	0.0	-1.3	-58.7	15.8	-57.1	-6.6	-18.8	-95.4	-47.9	-63.1	-50.8	3.5	85.9	14.1											
9	3701 Photo Plates & Film, Flat, Sensitized, Unexposed	8.7	0.3	-10.0	-53.5	-18.4	6.9	-9.7	-18.5	-68.1	-36.1	-8.7	-27.3	7.2	59.5	40.5											
10	7108 Gold (Incl Plat Plated), Unwr, Semimfr Or Powder	1.5	0.1	1.1	267.0	-38.0	50.7	24.0	-16.7	-91.7	-90.5	10.6	-57.6	0.4	15.1	84.9											

■ MA ■ US ■ non-US export growth exceeds World growth ■ World growth exceeds average World growth

Table 15
Canada Imports by World Region of Origin
Comparative Growth Rates 2001-2002, 1998-2002 and Regional Market Shares 2002

	2002 (\$mil)		2001-2002		1998-2002	
	Exports	Share	\$Increase	%Increase	\$Increase	%Increase
TOTAL ALL COUNTRIES	222,262	100.0	708	0.3	20,889	10.4
North America	147,282	66.3	-1,565	-1.1	4,782	3.4
United States	139,171	62.6	-1,832	-1.3	1,865	1.4
Massachusetts	2,710	1.2	-135	-4.7	-594	-18.0
Mexico	8,101	3.6	273	3.5	2,927	56.6
Latin America	4,397	2.0	50	1.2	829	23.2
South America	3,390	1.5	101	3.1	753	28.6
Central America	406	0.2	42	11.4	32	8.6
Caribbean	602	0.3	-93	-13.3	44	7.9
Europe	29,472	13.3	171	0.6	6,482	28.2
Western Europe	28,505	12.8	157	0.6	6,542	29.8
European Union	24,663	11.1	-179	-0.7	5,475	28.5
Eastern Europe	967	0.4	13	1.4	-60	-5.8
Former Soviet Republics	387	0.2	-38	-8.9	-216	-35.8
Asian Continent	34,024	15.3	2,387	7.5	7,501	28.3
Japan	9,826	4.4	364	3.9	388	4.1
China	10,186	4.6	1,972	24.0	5,024	97.3
Asia-Nics	7,067	3.2	-282	-3.8	470	7.1
Asean	4,603	2.1	87	1.9	188	4.3
Asia Near East	1,693	0.8	56	3.4	952	128.6
Asia-South	1,212	0.5	83	7.3	290	31.4
African Continent	2,000	0.9	506	33.9	637	46.7
Sub-Saharan Africa	798	0.4	137	20.7	-104	-11.6
Australia And Oceania	1,458	0.7	73	5.3	322	28.4
Other	3,460	1.6	-1,150	-24.9	172	5.2

Highlights by World Region and Country:

- Canadian imports from every other continent grew faster than its imports from Massachusetts and the US from 2001-2002 and from 1998-2002. The only other regions with below average growth in both periods are the Caribbean, the Former Soviet Republics, and parts of the Asia including Taiwan, Hong Kong, Singapore, and Indonesia.
- When ranked with all countries, the Commonwealth came in 11th in 2002 among Canadian import origins. Six Northeast states, New York, Vermont, Massachusetts, Connecticut, Delaware, and Pennsylvania, rank in the top ten state losses to Canada from 1998-2002. These states suffered major losses in high tech, machinery, and vehicle exports.
- Of all countries, China had the biggest export increase in both 2002 and 1998-2002, gaining nearly 100% over 5 years. Other countries with the largest dollar and percentage point increases from 1998-2002 were Mexico (56%), UK (49%), Germany (30%), and Korea (40%).
- High Tech is one common denominator among origins with slow or declining sales in Canada including the US, Japan, Taiwan, Malaysia, Philippines, Hong Kong, Singapore, and Indonesia. Oil is another; Nigeria, Iran, Venezuela, and Saudi Arabia reported declining shipments to Canada in 2002 or 1998-2002 and Algeria and Iraq reporting sizeable gains. United Kingdom gained the most, \$1.4 billion, in oil sales to Canada. Russia's largest losses were in iron and steel, oil, and fish.

■ Regional increase exceeds World increase

Table 16
Canada Imports from Massachusetts and by Country of Origin
Comparative Growth Rates 2001-2002, 1998-2002 and Market Shares 2002

Rank	Country / State of Origin	2002 (\$mil)		2001-2002		1998-2002	
		Exports	Share	\$Increase	%Increase	\$Increase	%Increase
	World	222,262	100.0	708	0.3	20,889	10.4
	World excluding USA	83,091	37.4	2,540	3.2	19,025	29.7
1	USA	139,171	62.6	-1,832	-1.3	1,865	1.4
2	China	10,186	4.6	1,972	24.0	5,024	97.3
3	Japan	9,826	4.4	364	3.9	388	4.1
4	Mexico	8,101	3.6	273	3.5	2,927	56.6
5	United Kingdom	6,202	2.8	-1,311	-17.5	1,998	47.5
6	Germany	5,285	2.4	139	2.7	1,158	28.0
7	France	3,725	1.7	165	4.6	392	11.8
8	Special Categories	3,457	1.6	-1,150	-25.0	172	5.2
9	Rep. of Korea	3,099	1.4	125	4.2	863	38.6
10	Italy	2,829	1.3	227	8.7	512	22.1
11	Massachusetts	2,710	1.2	-135	-4.7	-594	-18.0
12	Taiwan	2,704	1.2	-146	-5.1	-15	-0.5
13	Norway	2,507	1.1	245	10.8	803	47.1
14	Malaysia	1,287	0.6	63	5.2	-61	-4.5
15	Brazil	1,215	0.5	227	22.9	286	30.8
16	Sweden	1,185	0.5	82	7.4	262	28.4
17	Thailand	1,133	0.5	42	3.9	274	31.9
18	Ireland	1,107	0.5	178	19.1	364	49.1
19	Algeria	1,099	0.5	359	48.5	727	195.0
20	Australia	1,097	0.5	58	5.6	232	26.8
21	Switzerland	967	0.4	60	6.6	209	27.6
22	Belgium-Luxembourg	939	0.4	236	33.5	168	21.8
23	Netherlands	934	0.4	29	3.2	149	18.9
24	India	846	0.4	100	13.4	239	39.5
25	Venezuela	784	0.4	-90	-10.3	217	38.3
26	Philippines	709	0.3	76	11.9	63	9.7
27	Iraq	695	0.3	130	23.0	639	1,156.2
28	Denmark	654	0.3	160	32.5	268	69.3
29	Spain	653	0.3	83	14.5	91	16.1
30	Austria	642	0.3	78	13.9	221	52.5
31	China, Hong Kong SAR	635	0.3	-157	-19.8	-211	-24.9
32	Singapore	630	0.3	-105	-14.2	-167	-20.9
33	Indonesia	614	0.3	-7	-1.1	-7	-1.2
34	Saudi Arabia	477	0.2	-40	-7.7	212	79.8
35	Finland	449	0.2	6	1.3	28	6.7
36	Chile	426	0.2	12	3.0	183	75.3
37	Israel	402	0.2	0	-0.1	120	42.7
38	New Zealand	354	0.2	16	4.6	95	36.9
39	So. African Customs Union	312	0.1	21	7.1	-80	-20.5
40	Turkey	255	0.1	52	25.3	87	51.5

■ Regional increase exceeds World increase

Table 16 (continued)

Canada Imports from Massachusetts and by Country of Origin

Comparative Growth Rates 2001-2002, 1998-2002 and Market Shares 2002

		2002 (\$mil)		2001-2002		1998-2002	
Rank	TOP 10 INCREASES 2001-2002	Exports	Share	\$Increase	%Increase	\$Increase	%Increase
1	China	10,186	4.6	1,972	24.0	5,024	97.3
2	Japan	9,826	4.4	364	3.9	388	4.1
3	Algeria	1,099	0.5	359	48.5	727	195.0
4	Mexico	8,101	3.6	273	3.5	2,927	56.6
5	Norway	2,507	1.1	245	10.8	803	47.1
6	Belgium-Luxembourg	939	0.4	236	33.5	168	21.8
7	Italy	2,829	1.3	227	8.7	512	22.1
8	Brazil	1,215	0.5	227	22.9	286	30.8
9	Ireland	1,107	0.5	178	19.1	364	49.1
10	France	3,725	1.7	165	4.6	392	11.8
		2002 (\$mil)		2001-2002		1998-2002	
Rank	TOP 10 INCREASES 1998-2002	Exports	Share	\$Increase	%Increase	\$Increase	%Increase
1	China	10,186	4.6	1,972	24.0	5,024	97.3
2	Mexico	8,101	3.6	273	3.5	2,927	56.6
3	United Kingdom	6,202	2.8	-1,311	-17.5	1,998	47.5
4	USA	139,171	62.6	-1,832	-1.3	1,865	1.4
5	Germany	5,285	2.4	139	2.7	1,158	28.0
6	Rep. of Korea	3,099	1.4	125	4.2	863	38.6
7	Norway	2,507	1.1	245	10.8	803	47.1
8	Algeria	1,099	0.5	359	48.5	727	195.0
9	Iraq	695	0.3	130	23.0	639	1,156.2
10	Italy	2,829	1.3	227	8.7	512	22.1
		2002 (\$mil)		2001-2002		1998-2002	
Rank	TOP 10 DECREASES 2001-2002	Exports	Share	\$Increase	%Increase	\$Increase	%Increase
1	USA	139,171	62.6	-1,832	-1.3	1,865	1.4
2	United Kingdom	6,202	2.8	-1,311	-17.5	1,998	47.5
3	Special Categories	3,457	1.6	-1,150	-25.0	172	5.2
4	China, Hong Kong SAR	635	0.3	-157	-19.8	-211	-24.9
5	Taiwan	2,704	1.2	-146	-5.1	-15	-0.5
6	Massachusetts	2,710	1.2	-135	-4.7	-594	-18.0
7	Singapore	630	0.3	-105	-14.2	-167	-20.9
8	Venezuela	784	0.4	-90	-10.3	217	38.3
9	Uruguay	31	0.0	-59	-65.8	-10	-25.6
10	Saudi Arabia	477	0.2	-40	-7.7	212	79.8
		2002 (\$mil)		2001-2002		1998-2002	
Rank	TOP 10 DECREASES 1998-2002	Exports	Share	\$Increase	%Increase	\$Increase	%Increase
1	Massachusetts	2,710	1.2	-135	-4.7	-594	-18.0
2	Russian Federation	242	0.1	9	4.0	-251	-50.9
3	China, Hong Kong SAR	635	0.3	-157	-19.8	-211	-24.9
4	Singapore	630	0.3	-105	-14.2	-167	-20.9
5	So. African Customs Union	312	0.1	21	7.1	-80	-20.5
6	Nigeria	130	0.1	-7	-5.4	-73	-36.0
7	Iran	35	0.0	6	21.0	-69	-66.4
8	Malaysia	1,287	0.6	63	5.2	-61	-4.5
9	Togo	0	0.0	0	147.3	-47	-99.1
10	Zambia	1	0.0	1	245.4	-34	-97.3

■ Regional increase exceeds World increase

VII. APPENDIX

State of Origin of Movement (OM)

There are two different state export series produced by the U.S. Bureau of the Census, Foreign Trade Division: state of origin of movement (OM) and state of exporter location (EL). The origin of movement series, which began in 1987, is the one used in this report. The origin of movement, as reported by the exporter on the SED, is the state where the product began its journey to the point of export, the state of consolidation of shipments, the state of greatest value in the case of consolidation of shipments, or the state of a foreign trade zone. That state is not necessarily the state of manufacture or where the product was grown or mined. It may in some cases be the state of a broker or wholesaler or the state of consolidation of shipments. This issue results in some inflation of exports for the major port states and understatement of exports for other states. The problem is most acute for agricultural shipments and less so for manufactured exports. Nevertheless, for manufactured exports the OM series is the closest to state of production origin.

State of Exporter Location (EL)

The second state export data series is the Exporter Location (EL) series, produced by the Census Bureau from 1993-2002. The EL series is not used in this report. The state of the exporter location is based on the zip code of the exporter filing the SED and reflects the state of sales activity. In many cases the exporter is the manufacturing firm and the exporter location is also the production location. However, exporters also include intermediaries such as wholesalers and brokers or the exporter may be the marketing division of a manufacturing firm. Areas with high export sales activity are likely to support additional economic activity such as warehousing and distribution, financing, shipping, etc. However, in other cases exporters may simply reflect headquarter locations of manufacturers. In addition to providing a second measure of state export activity, the EL series is the source of the US International Trade Administration's Metropolitan Area Export Database. Shifts in the EL data, resulting from increased electronic filing of export documentation, led Census to discontinue the EL series.

Under-reporting of State Exports to Mexico (OM)

There is heavy consolidation of exports to Mexico along the Texas and California borders with Mexico. Since the state of origin of movement can reflect the state of consolidation, Texas and California are credited with very large shares of all US exports to Mexico. Texas is the OM state for 40% of all US exports to Mexico because of the consolidation effect. As a result, OM exports of interior states to Mexico are significantly understated.

State Exports by Harmonized System (HS)

HS commodity classification was adopted in 1989 by the largest exporting and importing countries and has since been adopted in nearly all countries. HS is the basis of the tariff schedule in most countries. State of origin of movement (OM) exports by HS were made available for the first time in 1999. There are no state of exporter location (EL) data available by HS. HS data were used in this report because they are extremely detailed by commodity. There are 1,266 4-digit HS commodity classifications and 4,500 6-digit HS commodities. In 2002, there were major changes in the 6-digit HS classification codes, but very few changes at the 4-digit level. To provide comparability to historical data, 4-digit HS data were used in this report.

State Exports by NAICS and SIC

NAICS (the North American Industry Classification System) differs from HS in that the former is industry-based, while the latter is commodity-based. There are 33 major 3-digit NAICS-based export industry groups. The State by NAICS export series replaces the State Exports by SIC series that began in 1987 and ended in 2000. NAICS data were used to measure state and US manufactured exports in this report.

MISER Imputations

The data used in this report do not contain MISER imputations for missing states and industries. From 1987-2000 MISER improved unadjusted SIC (Standard Industrial Classification) data from Census. MISER developed an imputation algorithm which allocated records with unknown states and industries among known states and industries. The data were generally recognized as the best available on state exports and were published on the National Trade Data Bank. However, MISER does not allocate unknown states and industries in the new HS and NAICS series because, with increased electronic filing of export documentation the numbers of records with missing states to impute has declined rapidly. The value of “unknowns” in the data fell from 25% of the total value of US exports in 1987 to 5.2% in 2002.

Potential Markets of Opportunity

The potential markets of opportunity listed in this report are subject to limitations that include but are not limited to the following:

- The list does not take into consideration current conditions in the markets.
- A single 4-digit commodity classification may be comprised of multiple products. In those cases, the market opportunity may be for selected products, not all products, within the 4-digit group.
- The opportunity for a specific product in a market may be a one-time or infrequent sale rather than ongoing.
- Mexico may appear incorrectly as a potential market of opportunity for products that are consolidated on the Texas/Mexico border and thus credited as Texas exports to Mexico.
- Opportunities may be falsely identified when the state of origin is credited to the state of a broker or wholesaler and not the manufacturer.
- The list is limited to the top 10 markets.

DATA SOURCES:

State, US, non-US Exports

All the state export data in this report are from the US Census Bureau, Foreign Trade Division State Exports by HS data series. Throughout most of the report the US data are also from the same US Census database. However, US and World trade statistics from the United Nations Comtrade database were used in the sections on state, US, and World Exports to non-US markets and to Canada. See detailed description of the data used in those sections below.

State Manufactured Exports

Based on US Census Bureau, Foreign Trade Division, State Exports by NAICS data for manufacturing industries only. State Exports by HS data were used to subtract out exports of diamonds, gold, and silver.

State Manufacturing Employment related to Manufactured Exports

US International Trade Administration, Office of Trade and Economic Analysis
“US Jobs from Exports - A 1997 Benchmark Study of Employment Generated by Exports of Manufactured Goods”
February 2001
<http://www.ita.doc.gov/td/industry/otea/jobs.html>

State Total Manufacturing Shipments

US Census Bureau, Manufacturing and Construction Division
“Annual Survey of Manufactures, 2001 Geographic Area Statistics”
January 2003
<http://www.census.gov/mcd/asm-as3.html>

State Manufacturing Employment

US Bureau of Labor Statistics
<http://www.bls.gov/data/home.htm>

Gross State Product

US Bureau of Economic Analysis
<http://www.bea.doc.gov/bea/regional/gsp.htm>

United Nations Data on US and World Exports

Data on 1998 and 2001 US and World Exports to non-US markets were based on data from the United Nations Comtrade database (<http://unstats.un.org/unsd/comtrade/>). Unfortunately, 2002 data were not available for most countries at the time this report was compiled. The data in this report are limited to countries reporting consistent trade data to the UN in 1998 and 2001. (See list of included reporting countries on the last page of the appendix) Imports of the reporting countries were used instead of exports since trade data are more reliable on the importing side. This is why, for example, the US and Canada established a statistical data exchange in 1990 whereby the US uses Canadian imports from the US in place of US exports to Canada, and Canada uses US imports from Canada in place of Canadian exports to the US. Further, imports of the reporting countries include data for countries not reporting statistics to the UN. Imports of the 104 reporting countries included in this report comprise close to 95% of total World imports. (Taiwan's data are not reported in the UN statistics for political reasons.) Data on reporting countries exports to the US were excluded for direct comparability with US exports to its non-US markets. The UN data on World imports from the US will not match US Census data on US exports to the World reported in earlier sections of the report.

There are differences in the way countries collect and report their trade statistics. For example, only half of UN reporting countries report the value of military shipments. Some of those may report only exports, but not imports. A complete list of reporting practices by UN reporting country is available at <http://unstats.un.org/unsd/comtrade/mr/rfReportersList.aspx>. Additionally, some countries report data for total imports and for a limited level of commodity detail, but exclude specific data at a greater level of detail. For this reason, the sum of the commodity level data by 4-digit HS does not match the sum of the 2-digit HS data. The sum of the 2-digit and 4-digit HS commodity data also do not match the sum of the total values by country because four countries did not report by HS in both 1998 and 2001, but the total value of their imports was included in the report. The countries are Egypt, Pakistan, Qatar, and Malawi.

UN data on World imports from US states are not available. All state data in this report are from the US Census Bureau, Foreign Trade Division. (See detailed description of state exports in appendix.) One major difference between the state export data and reporting countries import data is that the state export figures include transshipments from foreign countries, whereas 82% of UN reporting countries report imports by country of origin or production.

Both the UN and the Census data in this report exclude exports of diamonds, unwrought gold and silver, and valuable artwork and antiques that are largely traded rather than manufactured and do not have the economic impact that their high export values would imply.

United Nations Data on US, and World Exports to Canada

Data on 1998 and 2002 US and World Exports to Canada were based on Canada's imports from the US and World as reported in the United Nations Comtrade database. Statistics Canada is the source of the Canadian import statistics provided by the UN. Comparable Canadian imports from US states are available directly from Statistics Canada, but not from the UN database. However, state exports from the US Census rather than from Statistics Canada were used in this report because of budgetary constraints and the relatively high cost of the Statistics Canada data. Despite the US-Canada statistical data swap, there are two major differences in how each country reports US state exports.

One of the two most important differences is that Canada excludes the value of transshipments from other countries while the US includes them in the state level data. The second most important difference is that Canada has a much lower "low value shipment" threshold for imports than the US has for exports. While the US collects export data only on shipments valued over \$2500 (US), Canada collects and publishes complete data on import shipments over \$900 (Canadian). Canadian state export data include complete commodity detail for all shipments over \$900 (Canadian) and a separate total value for shipments valued under \$900. Canadian state data also include the value of corrections for late receipts of documentation. US Census state export data include shipments over \$2500 (US). Interestingly, the US data also provide the total value for state shipments to Canada under \$900 (Canadian). What's missing in the US state data appear to be all shipments valued between \$900 (Canadian) and \$2500 (US) and the value for late receipt corrections. In the US data, all the missing state values are credited to "unknown state". In 2002 the total value of state exports between \$900 (Canadian) - \$2500 (US) was \$10.5 billion and the value of Canadian late receipts from the US was \$1.5 billion. Total 2002 US Census "unknown state" exports to Canada were \$12.5 billion (US). Total 2002 Statistics Canada "unknown state" state exports to Canada were \$493 million (US).

This report's section on state, US, and World exports to Canada specifically excludes all state exports of HS 98, "special classifications". The major component of HS 98 is low value shipments (those under \$900 Canadian). Under an agreement between Statistics Canada and all the private air carriers, NY is credited as the state of origin of movement of all low value shipments exported via the carriers. HS 98 also includes goods returned to Canada, the value of repairs, and military equipment not identified by kind. This report also excludes data on Canadian imports of diamonds, unwrought gold and silver, and valuable artwork and antiques.

United Nations Data in this report includes the following countries:

NORTH AMERICA

USA
Greenland
Canada
Mexico

LATIN AMERICA

Guatemala
El Salvador
Honduras
Nicaragua
Costa Rica
Panama
Bahamas
Saint Lucia
Grenada
Barbados
Trinidad and Tobago
Colombia
Venezuela
Ecuador
Peru
Bolivia
Chile
Brazil
Paraguay
Uruguay
Argentina

EUROPE

Iceland
Sweden
Norway
Finland
Denmark
United Kingdom
Ireland
Netherlands
Belgium-Luxembourg
Andorra
France
Germany
Austria
Czech Rep.
Slovakia
Hungary
Switzerland
Estonia
Latvia
Lithuania
Poland
Russian Federation
Belarus
Azerbaijan
Rep. of Moldova
Spain
Portugal
Malta
Italy
Croatia
Slovenia
TFYR of Macedonia
Albania
Greece
Romania
Turkey
Cyprus

ASIA

Lebanon
Iran
Israel
Jordan
Saudi Arabia
Qatar
Oman
India
Pakistan
Thailand
Malaysia
Singapore
Indonesia
Philippines
China, Macao SAR
Maldives
China
Mongolia
Rep. of Korea
China, Hong Kong SAR
Japan

AUSTRALIA / OCEANIA

Australia
New Zealand

AFRICA

Morocco
Tunisia
Egypt
Cameroon
Togo
Burkina Faso
Senegal
Guinea
Niger
Benin
Burundi
Rwanda
Ethiopia
Uganda
United Rep. of Tanzania
Mauritius
So. African Customs Union
Zambia
Malawi