

MASSACHUSETTS EXPORTS 2001

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Massachusetts Exports 2001

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I. EXECUTIVE SUMMARY

The Asian financial crisis, the high tech debacle, the recession of 2001, and the events of 9/11 have all taken a toll on Massachusetts exporters since 1998. The Commonwealth was hit particularly hard by the high tech collapse of 2001. Exports of instruments for production and testing of semiconductors were battered in Asia while telecommunications-related products suffered large declines in major markets in both Asia and Europe. Nevertheless, over the four year period of 1998-2001, Massachusetts exports fared better than US exports as a whole, growing 10.2% compared to the nation's 7.4%. Stronger than average growth in 1999 and 2000 helped cushion the state's fall in 2001. Also, a solid export showing from some of the state's non-high tech sectors such as organic chemicals, pharmaceuticals and tools/cutlery helped offset losses in the high tech industries. Massachusetts' performance was typical of other high technology states in the Northeast.

The highlights of this year's report are presented below in the form of a SWOT analysis. The report presents data from 2000-2001 and, for a longer term perspective, from 1998-2001 as well. It should be noted that the report covers only product exports from the state and does not consider service exports.

Strengths

- Organic chemicals was the state's top growth category in both 2000-2001 and 1998-2001. Over the last four years sector exports have climbed 150.9%. International shipments are heavily dominated by one commodity group and one overseas market. Hormones and derivatives Nesoi (not elsewhere specified or indicated) accounted for 85% of all industry exports in 2001. The top overseas market was France, which coincidentally took 85% of all sector shipments in the same year.
- Although pharmaceuticals have trailed high US export growth rates in the past four years, the industry's strong steady advance qualifies it as an export strength of the Commonwealth. Exports increased 50.4% in '98-'01 and were led by medicaments in measured doses for retail packaging, which accounted for 61% of all export shipments. The UK was the dominant market; however, Japan, Ireland, Germany, Brazil, and Argentina all saw moderate to large percentage increases in pharmaceuticals from Massachusetts.
- Tools and cutlery of base metals has been a solid, reliable performer in the state's export picture. Exports were up 14.2% in 2000-2001 (compared to a 4.6% decline for the US) and up 24.9% for 1998-2001 (compared to an increase of only 6.8% for the US). Razors, safety razors and bandsaw blades are the sector's leading export commodities.
- Plastics is another mature Massachusetts industry that delivered a positive export performance in '98-'01. Exporting strength in the industry derives from a diverse base of products and international markets.
- Within sectors hit hard by the export downturn in 2001 there were a number of commodities that were exceptions to the rule and prospered in the international marketplace. For example, high volume sales of radar apparatus and related equipment in a small handful of markets helped offset losses in the battered electric machinery sector. Also in the electric machinery industry, metal oxide semiconductors and mono digital integrated circuit were upside exceptions in an otherwise broad decline in the export of IT related products. In the instrumentation sector, medical and surgical instruments as well as parts and accessories for still photo cameras recorded consistent advances throughout 1998-2001.

- Second tier markets Greece and Belgium provided islands of growth that helped offset losses in 2001 in the state's traditional major markets in Europe and Asia.

Weaknesses

- Industrial machinery, including computers, continued to slide from its long held position as the Commonwealth's number one export industry falling 21.5% in 2001 and 25% over the past four years. Automatic data processing units, digital processing units, and parts and accessories for adp machines accounted for the bulk of the losses.
- Photographic/cinematographic goods, arms and ammunition, and precious stones/precious metals all saw exports fall substantially and all trailed corresponding US export growth figures in both 2000-2001 and 1998-2001. Double digit decreases in export markets for each sector ranged from -37/2% to -57.4%.
- Fish and crustaceans was not a large export loss industry but its performance was weak in comparison to competitors in other parts of the US. Massachusetts fish and crustacean exports for '98-'01 were up only 7% compared to 42.6% growth for the US.
- Despite the advantages of proximity and NAFTA, Canada was the Commonwealth's largest loss market in 2000-2001 and 1998-2001. Losses to Canada in 2001 accounted for 28.9% of the state's total decline in export volume.
- After Canada, only Taiwan and the Netherlands recorded export losses in both measurement periods (2000-2001 and 1998-2001) and trailed the US in growth as well.

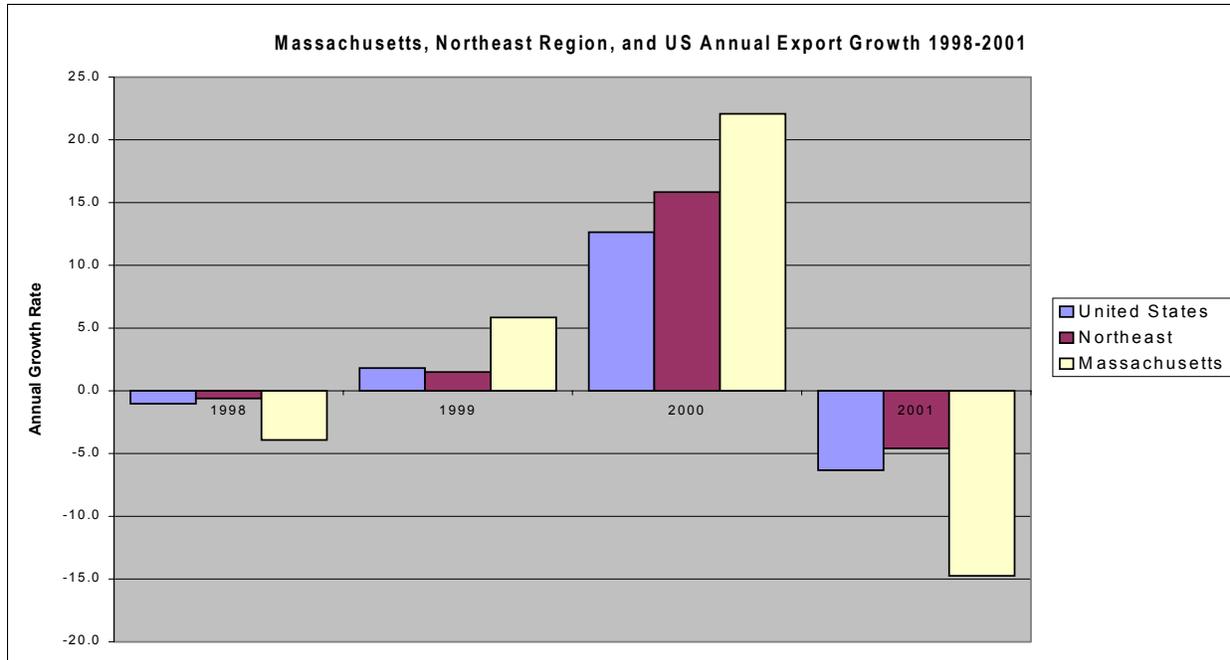
Opportunities

- The US dollar dropped about 9% against major currencies worldwide between January and July 2002. The lower dollar will make US products more price competitive and should be a boost to exports in major markets around the world.
- Successful export growth by Massachusetts exporters to China (48.7% growth in '98-'01) indicates interest and expertise in the market. The recent entry of China into the WTO should create additional opportunities for the state exporters to take advantage of.
- Now that Congress has approved "trade promotion authority" (formerly known as "fast track") for President Bush, US trade officials will begin work immediately on agreements with Chile and Singapore to allow tariff-free trading with those nations. Singapore was one of the Commonwealth's top 10 export markets in '98-'01; establishment of a free trade agreement should add to the momentum of state manufacturers in that market.
- Table 2.3 (Massachusetts Top 100 Export Commodities: Top 10 Potential Markets of Opportunity) shows US growth markets where Massachusetts growth or market penetration is low relative to the US. For each of Massachusetts 100 top export commodities, the table lists 10 new potential markets. This is a useful tool to look for concentrations of opportunity that can guide the state in planning new business development missions for select products. For example, a review of this table shows Mexico as a top market for new export development. Mexico is listed first as a potential new market for 21 of the listed commodities -- more than any other single country destination.
- Select markets in Africa such as Kenya, Namibia, Algeria, Nigeria and the Republic of South Africa are providing export opportunities for committed US exporters now. Building upon recent success in Nigeria, Massachusetts exporters may benefit from a targeted promotion campaign to this largely unexploited market.

Threats

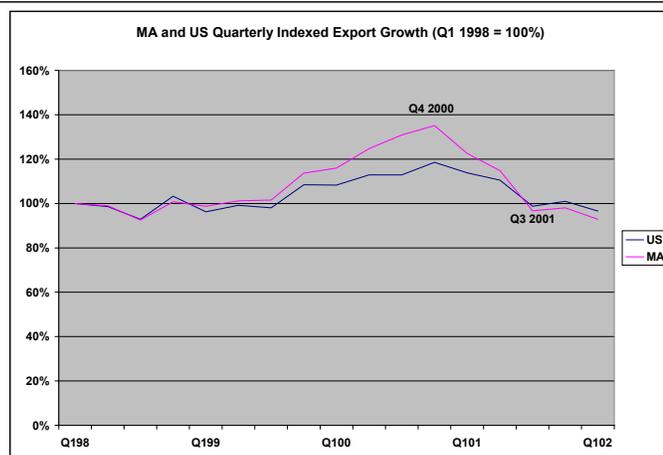
- Foot dragging by China on WTO commitments could delay new market opportunities.
- Return of a bull currency will dampen demand for US products, particularly less specialized and lower tech products for which there are ready substitutes from other countries.
- A slow US economic recovery could have a domino effect and lower demand for US-made industrial inputs which feed the export industries of countries such as Singapore, Taiwan, Malaysia and Thailand. These countries have traditionally relied heavily on the US as a market for their finished products.
- The Bank of Canada recently raised interest rates for the third time since April 2002. The increases are designed to address rising inflation worries. If the rate hikes continue they could slow the pace of the Canadian economy and hamper the ability of Massachusetts manufacturers to regain lost export market share.
- Market protection for the steel industry in the US by the Bush administration may lead to countervailing measures in markets such as Europe, Japan and China that could stifle market opportunities for the state's own iron and steel sector. Iron and steel ranked ninth among the Commonwealth's top 10 export growth categories.
- Limitations placed on fish catches for 15 species in a 2002 court ruling may effect the amount of product available for export. The problem may be compounded by anticipated weak economic recoveries in Japan and Italy, the state's second and third largest export destinations.

II. INTRODUCTION



Annual Export Growth Rates	1998	1999	2000	2001	1998-2001
United States	-1.0	1.8	12.6	-6.3	7.43
Northeast	-0.6	1.5	15.8	-4.6	12.19
Massachusetts	-3.9	5.8	22.1	-14.7	10.15

Value Exports (\$Billions)	1998	1999	2000	2001
United States	680.47	692.82	780.42	731.03
Northeast	102.46	104.00	120.47	114.95
Massachusetts	15.88	16.81	20.51	17.49

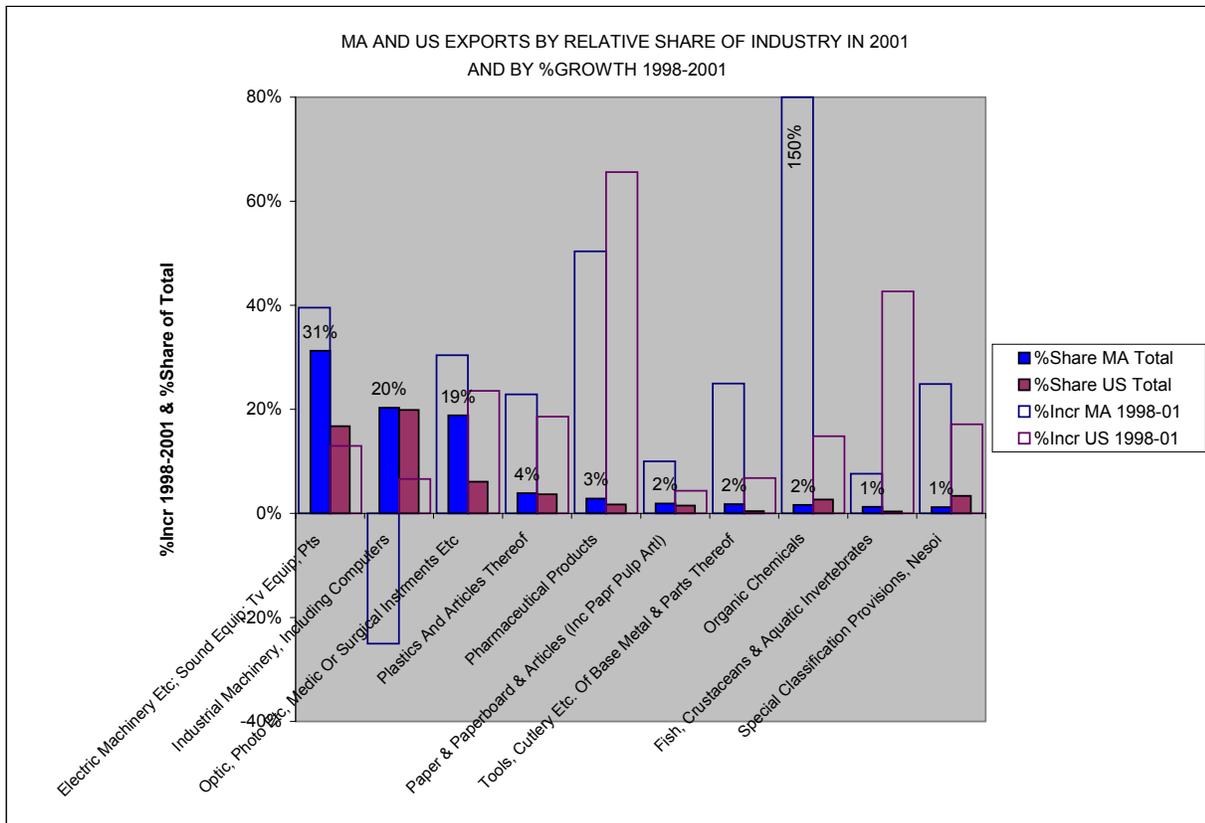
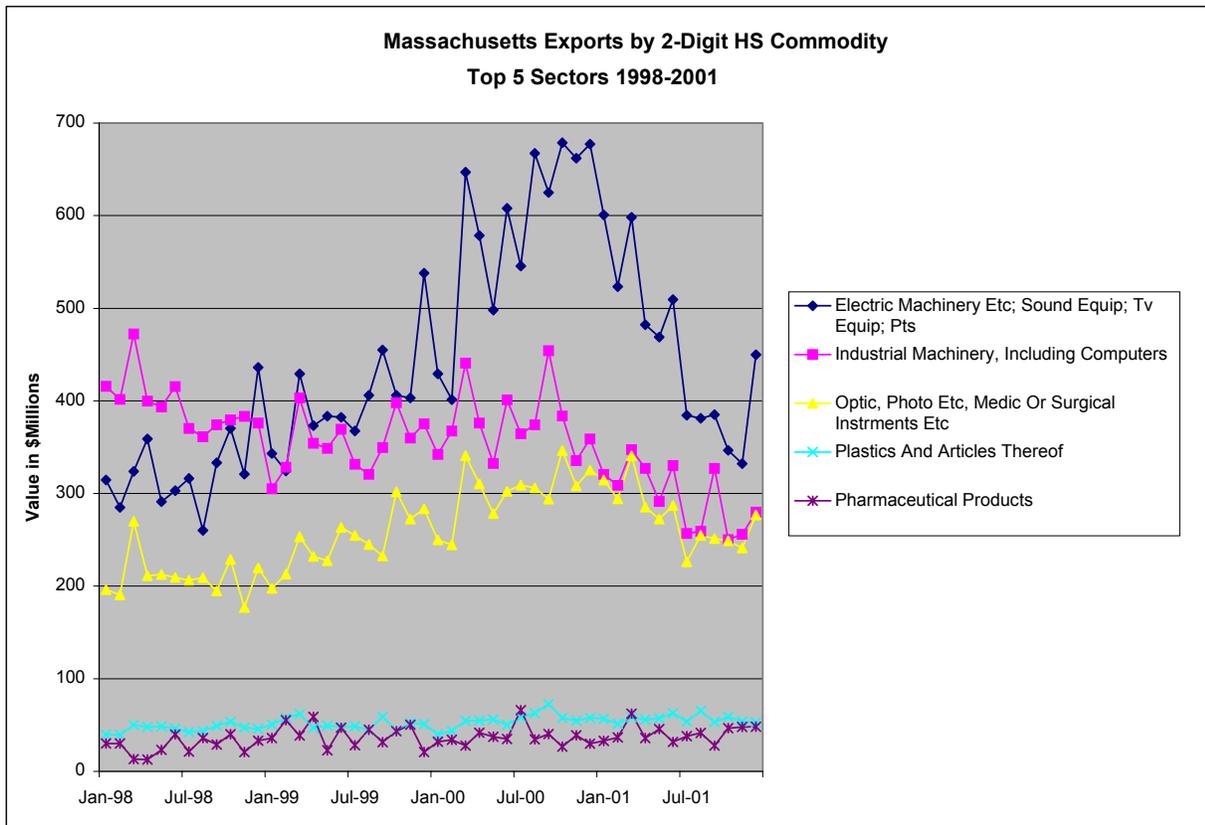


Massachusetts recorded an average export growth rate of 10.15% in the period 1998 -2001 --- higher than the national average of 7.43 % but lower than the other states of the Northeast Region¹ that grew 12.19%. The Commonwealth outperformed both the US and the NE Region in 1999 and 2000 during periods of export growth but did worse than both during periods of export contraction. Massachusetts concentration of high technology industries was hit harder by both the Asian financial crisis in 1998 and the recession of 2001 than either the NE Region or the nation overall.

The line graph tracks Massachusetts and US quarterly export growth from 1998 to 2001 as compared to Q1 1998 which represents 100%. The graph indicates that both state and US exports peaked in Q4 2000 before dropping sharply for the next 3 quarters. Each sustained an upswing in Q4 2001 followed by a dip in Q1 2002. Seasonally adjusted data from the US Department of Commerce shows that February 2002 was the true low point for national exports with exports increasing in each of the next three months.

¹ The Northeast Region consists of Massachusetts, Connecticut, Maine, Vermont, Rhode Island, New Jersey, New York, Delaware and Pennsylvania.

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

- The state's three leading export industries (electrical machinery, etc.; industrial machinery, including computers; and optic, photo, medical or surgical instruments, etc.) all suffered a decline in 2001 accounting for 94% of the total drop in export volume. Exports from Massachusetts fell 14.7% from the previous year while nationally exports decreased only 6.3%.
- Despite the setback in 2001, 17 of Massachusetts' top 20 export categories registered export growth in the period 1998-2001.
- The top export growth sector by volume in 2001 was organic chemicals, expanding by \$62.4 million or 28.7%. Since 1998 the export of organic chemicals has advanced 150.9%.
- Massachusetts benefits from a diversified base of strong export sectors. Eight of the Commonwealth's top 10 export commodities are export "industries of specialization." This is shown in the last column of Table 1.1 under the heading of "% of US". The column indicates Massachusetts share of the total US exports in each industry. Massachusetts contribution to total US exports in 2001 was 2.4%. Any industry with a share greater than 2.4% can be considered an export industry of specialization.
- Looking at four year trends, the most significant loss has occurred in industrial machinery, including computers. Exports of this commodity have dropped 25% since 1998 while US exports have advanced 6.6%. Industrial machinery, including computers, dominated Massachusetts exports for many years. Its continued slide largely reflects the demise of the mini computer industry in the state in the early 90's.

Table 1.1
Massachusetts Exports by 2-Digit Harmonized System (HS) Commodity Chapter
Top 40 HS Chapters 2001
Dollar Value of Shipments in Millions

		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 HS COMMODITY CHAPTERS	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
1	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	5,462.1	-1,555.6	-22.2	-17.4	1,548.3	39.6	13.0	4.5
2	84 Industrial Machinery, Including Computers	3,554.8	-976.3	-21.5	-8.7	-1,188.0	-25.0	6.6	2.5
3	90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,293.4	-322.5	-8.9	-1.8	767.1	30.4	23.5	7.4
4	39 Plastics And Articles Thereof	681.1	17.7	2.7	-4.5	126.8	22.9	18.6	2.5
5	30 Pharmaceutical Products	495.7	50.8	11.4	18.8	166.0	50.4	65.6	4.0
6	48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	329.5	-45.2	-12.1	-6.1	29.9	10.0	4.3	3.0
7	82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	310.6	38.7	14.2	-4.6	62.0	24.9	6.8	10.8
8	29 Organic Chemicals	279.7	62.4	28.7	-8.1	168.2	150.9	14.8	1.4
9	3 Fish, Crustaceans & Aquatic Invertebrates	218.9	-3.9	-1.8	7.2	15.4	7.6	42.6	7.7
10	98 Special Classification Provisions, Nesoi	206.6	-0.8	-0.4	3.9	41.1	24.9	17.2	0.8
11	38 Miscellaneous Chemical Products	181.1	-24.6	-11.9	-0.6	47.4	35.5	11.5	1.7
12	41 Raw Hides And Skins (No Furskins) And Leather	137.8	33.4	32.0	11.3	22.6	19.7	36.4	5.1
13	95 Toys, Games & Sport Equipment; Parts & Accessories	137.4	18.2	15.3	-6.8	13.3	10.7	-1.2	3.6
14	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	128.5	-58.6	-31.3	-4.5	-76.1	-37.2	22.3	0.9
15	28 Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	120.5	-8.1	-6.3	3.2	32.2	36.5	15.7	2.0
16	81 Base Metals Nesoi; Cermets; Articles Thereof	113.5	1.6	1.4	7.7	45.5	67.1	17.4	10.1
17	49 Printed Books, Newspapers Etc; Manuscripts Etc	112.2	20.9	22.9	1.9	-35.8	-24.2	3.7	2.4
18	72 Iron And Steel	106.7	11.5	12.1	-4.2	26.4	32.9	15.5	2.1
19	73 Articles Of Iron Or Steel	82.5	-3.5	-4.0	-9.1	9.6	13.1	-0.9	1.0
20	59 Impregnated Etc Text Fabrics; Tex Art For Industry	81.5	-2.1	-2.5	6.0	-10.7	-11.6	11.5	6.3
21	37 Photographic Or Cinematographic Goods	79.9	-128.8	-61.7	-25.1	-107.8	-57.4	-3.2	3.1
22	88 Aircraft, Spacecraft, And Parts Thereof	78.3	17.9	29.6	9.1	17.5	28.8	-14.7	0.2
23	87 Vehicles, Except Railway Or Tramway, And Parts Etc	67.6	0.6	0.9	-5.1	7.4	12.3	-0.6	0.1
24	32 Tanning & Dye Ext Etc; Dye, Paint, Putty Etc; Inks	65.3	2.7	4.3	-7.6	20.7	46.5	10.1	1.6
25	60 Knitted Or Crocheted Fabrics	61.9	-9.2	-12.9	17.7	-14.4	-18.9	56.0	6.5
26	33 Essential Oils Etc; Perfumery, Cosmetic Etc Preps	59.9	-7.4	-11.1	9.8	-16.7	-21.8	24.8	1.4
27	94 Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab Bd	57.6	-7.5	-11.5	-6.7	1.5	2.6	2.9	0.9
28	76 Aluminum And Articles Thereof	56.4	-4.2	-7.0	-11.0	-21.5	-27.6	-9.1	1.1
29	64 Footwear, Gaiters Etc. And Parts Thereof	54.4	0.1	0.2	-7.0	5.8	11.9	-5.3	6.8
30	35 Albuminoidal Subst; Modified Starch; Glue; Enzymes	49.1	-3.1	-5.9	15.9	-18.0	-26.9	52.0	2.7
31	21 Miscellaneous Edible Preparations	48.1	8.5	21.6	9.1	2.5	5.5	20.3	1.7
32	93 Arms And Ammunition; Parts And Accessories Thereof	47.7	-96.3	-66.9	-0.2	-46.5	-49.4	-14.3	2.2
33	97 Works Of Art, Collectors' Pieces And Antiques	46.8	-4.5	-8.7	18.8	11.2	31.4	48.7	1.2
34	20 Prep Vegetables, Fruit, Nuts Or Other Plant Parts	46.2	9.8	27.0	-5.1	19.0	70.1	-4.2	2.2
35	54 Manmade Filaments, Including Yarns & Woven Fabrics	45.2	-6.4	-12.3	-20.3	11.2	32.8	-0.6	2.3
36	70 Glass And Glassware	44.6	0.1	0.2	-0.9	14.5	48.0	23.3	1.2
37	40 Rubber And Articles Thereof	42.4	4.2	11.1	-4.2	8.6	25.6	8.0	0.6
38	47 Pulp Of Wood Etc; Waste Etc Of Paper & Paperboard	40.3	3.8	10.4	-20.0	24.6	157.1	8.2	1.1
39	68 Art Of Stone, Plaster, Cement, Asbestos, Mica Etc.	32.2	0.9	2.9	-4.7	-8.5	-20.8	6.2	2.6
40	56 Wadding, Felt Etc; Sp Yarn; Twine, Ropes Etc.	30.8	-5.2	-14.3	-1.6	-8.7	-22.1	3.7	2.9

■ 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 2000-2001 and 1998-2001

		MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
HS	TOP 10 GROWTH CATEGORIES 2000-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
1	29 Organic Chemicals	279.7	62.4	28.7	-8.1	168.2	150.9	14.8	1.4
2	30 Pharmaceutical Products	495.7	50.8	11.4	18.8	166.0	50.4	65.6	4.0
3	82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	310.6	38.7	14.2	-4.6	62.0	24.9	6.8	10.8
4	41 Raw Hides And Skins (No Furskins) And Leather	137.8	33.4	32.0	11.3	22.6	19.7	36.4	5.1
5	49 Printed Books, Newspapers Etc; Manuscripts Etc	112.2	20.9	22.9	1.9	-35.8	-24.2	3.7	2.4
6	95 Toys, Games & Sport Equipment; Parts & Accessories	137.4	18.2	15.3	-6.8	13.3	10.7	-1.2	3.6
7	88 Aircraft, Spacecraft, And Parts Thereof	78.3	17.9	29.6	9.1	17.5	28.8	-14.7	0.2
8	39 Plastics And Articles Thereof	681.1	17.7	2.7	-4.5	126.8	22.9	18.6	2.5
9	72 Iron And Steel	106.7	11.5	12.1	-4.2	26.4	32.9	15.5	2.1
10	20 Prep Vegetables, Fruit, Nuts Or Other Plant Parts	46.2	9.8	27.0	-5.1	19.0	70.1	-4.2	2.2
		MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
HS	TOP 10 GROWTH CATEGORIES 1998-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
1	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	5,462.1	-1,555.6	-22.2	-17.4	1,548.3	39.6	13.0	4.5
2	90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,293.4	-322.5	-8.9	-1.8	767.1	30.4	23.5	7.4
3	29 Organic Chemicals	279.7	62.4	28.7	-8.1	168.2	150.9	14.8	1.4
4	30 Pharmaceutical Products	495.7	50.8	11.4	18.8	166.0	50.4	65.6	4.0
5	39 Plastics And Articles Thereof	681.1	17.7	2.7	-4.5	126.8	22.9	18.6	2.5
6	82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	310.6	38.7	14.2	-4.6	62.0	24.9	6.8	10.8
7	38 Miscellaneous Chemical Products	181.1	-24.6	-11.9	-0.6	47.4	35.5	11.5	1.7
8	81 Base Metals Nesoi; Cermets; Articles Thereof	113.5	1.6	1.4	7.7	45.5	67.1	17.4	10.1
9	98 Special Classification Provisions, Nesoi	206.6	-0.8	-0.4	3.9	41.1	24.9	17.2	0.8
10	28 Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	120.5	-8.1	-6.3	3.2	32.2	36.5	15.7	2.0
		MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
HS	TOP 10 LOSSES 2000-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
1	85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	5,462.1	-1,555.6	-22.2	-17.4	1,548.3	39.6	13.0	4.5
2	84 Industrial Machinery, Including Computers	3,554.8	-976.3	-21.5	-8.7	-1,188.0	-25.0	6.6	2.5
3	90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,293.4	-322.5	-8.9	-1.8	767.1	30.4	23.5	7.4
4	37 Photographic Or Cinematographic Goods	79.9	-128.8	-61.7	-25.1	-107.8	-57.4	-3.2	3.1
5	93 Arms And Ammunition; Parts And Accessories Thereof	47.7	-96.3	-66.9	-0.2	-46.5	-49.4	-14.3	2.2
6	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	128.5	-58.6	-31.3	-4.5	-76.1	-37.2	22.3	0.9
7	48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	329.5	-45.2	-12.1	-6.1	29.9	10.0	4.3	3.0
8	38 Miscellaneous Chemical Products	181.1	-24.6	-11.9	-0.6	47.4	35.5	11.5	1.7
9	96 Miscellaneous Manufactured Articles	22.2	-14.8	-39.9	-10.3	-8.3	-27.1	-7.2	2.0
10	69 Ceramic Products	25.5	-14.5	-36.3	-2.0	4.2	20.0	9.0	2.5
		MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
HS	TOP 10 LOSSES 1998-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
1	84 Industrial Machinery, Including Computers	3,554.8	-976.3	-21.5	-8.7	-1,188.0	-25.0	6.6	2.5
2	37 Photographic Or Cinematographic Goods	79.9	-128.8	-61.7	-25.1	-107.8	-57.4	-3.2	3.1
3	71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	128.5	-58.6	-31.3	-4.5	-76.1	-37.2	22.3	0.9
4	93 Arms And Ammunition; Parts And Accessories Thereof	47.7	-96.3	-66.9	-0.2	-46.5	-49.4	-14.3	2.2
5	49 Printed Books, Newspapers Etc; Manuscripts Etc	112.2	20.9	22.9	1.9	-35.8	-24.2	3.7	2.4
6	76 Aluminum And Articles Thereof	56.4	-4.2	-7.0	-11.0	-21.5	-27.6	-9.1	1.1
7	35 Albuminoidal Subst; Modified Starch; Glue; Enzymes	49.1	-3.1	-5.9	15.9	-18.0	-26.9	52.0	2.7
8	33 Essential Oils Etc; Perfumery, Cosmetic Etc Preps	59.9	-7.4	-11.1	9.8	-16.7	-21.8	24.8	1.4
9	62 Apparel Articles And Accessories, Not Knit Etc.	16.4	-1.1	-6.1	-27.0	-16.7	-50.4	-44.3	0.6
10	60 Knitted Or Crocheted Fabrics	61.9	-9.2	-12.9	17.7	-14.4	-18.9	56.0	6.5

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

Massachusetts Exports by 6-Digit Harmonized System Commodities Top 40 Commodities, Top 10 Gains and Losses

Highlights

- At this level, Massachusetts' export "industries of specialization" as indicated in the far right column are even more pronounced. Massachusetts companies hold dominant market share positions among US exporters for hormones and derivatives, particle accelerators and ion implanters for semiconductors, razors, and parts and accessories for still photo cameras.
- Among the top growth commodities, it is interesting to note that four of the top six commodities are in the medical/ biotechnology field reflecting these sectors in Massachusetts. The leading commodities include medical needles and catheters, medicaments, surgical instruments and appliances, and hormones and derivatives.
- Over the past 4 years Massachusetts exporters outperformed their exporting brethren in the US as a whole in 9 of the state's top 10 export product categories at the 6-digit level.
- Leading in the loss column for 2001 was apparatus for line telephony or telegraphy, falling victim to the worldwide slowdown for telecommunications products last year. Rapid growth in earlier years, however, still has this commodity showing a strong net gain in exports (164.7%) when measured since 1998. Similarly, products related to semiconductor production (particle accelerators, ion accelerators, and instruments to check semiconductor wafers) also declined considerably in 2001 but registered a net gain when viewed over the past four years.
- An exception to the slide in semiconductor related products in 2001 was metal oxide semiconductors (MOS). Compared to the 60% average growth in exports for MOS recorded over the past four years, last year's advance of only 6% was anemic but still far better than the national average which fell 27.6%.

Table 2.1
Massachusetts Exports by 6-Digit Harmonized System (HS) Commodities
Top 40 Commodities 2001
Dollar Value of Shipments in Millions

		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 HS6 COMMODITIES	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
1	854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	812.7	45.7	6.0	-27.6	304.7	60.0	21.3	3.1
2	851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	811.8	-663.2	-45.0	-20.5	505.1	164.7	51.9	15.2
3	847330	Parts & Accessories For Adp Machines & Units	718.1	-174.8	-19.6	-18.7	-532.8	-42.6	3.1	3.7
4	901839	Med Needles. Nesoi, Catherers Etc And Parts Etc	517.5	109.6	26.9	11.9	205.1	65.7	33.5	25.1
5	854230	Electronic Monolithic Integrated Circuit,N.E.S.O.I	319.4	-138.9	-30.3	-16.8	41.9	15.1	31.6	4.2
6	901890	Instr & Appl F Medical Surgical Dental Vet, Nesoi	318.9	72.6	29.5	18.1	76.7	31.7	26.7	8.0
7	300490	Medicaments Nesoi, Measured Doses, Retail Pk Nesoi	302.6	81.9	37.1	35.9	201.3	198.8	138.2	4.6
8	903082	Inst To Check Semiconduct Wafers &Such That Record	270.2	-229.4	-45.9	-49.7	190.0	237.1	24.4	28.4
9	293799	Hormones And Deriv Nesoi, Steroids Etc Nesoi	237.7	54.5	29.8	17.2	154.7	186.3	78.5	92.9
10	901819	Electro-Diagnostic Apparatus Nesoi, And Parts Etc.	218.9	49.2	29.0	12.3	37.2	20.5	36.0	10.9
11	854219	Monolithic Integrated Circuits, Digital, Nesoi	209.1	-80.3	-27.7	-18.6	19.9	10.5	21.8	12.1
12	847149	Digital Adp Mac & Units,Entered As Systems, Nesoi	205.3	-35.3	-14.7	1.3	-10.6	-4.9	7.6	4.3
13	854311	Particle Accelerators,Ion Implanters For Smcnctrs	199.3	-283.7	-58.7	-57.6	78.8	65.3	49.1	80.4
14	903090	Pts Of Inst F Meas Elect Quat Alpha Beta Inzng Rdt	198.4	-6.7	-3.2	-6.4	81.6	69.9	56.0	14.6
15	851730	Telephonic Or Telegraphic Switching Apparatus	181.8	-48.1	-20.9	-10.6	-18.3	-9.2	-26.9	14.9
16	821210	Razors	176.4	26.4	17.6	19.9	65.8	59.5	31.7	85.7
17	851750	Telecomm Apprtus,Carrier-Cur & Digital Systm,Nesoi	175.2	-14.1	-7.5	-12.9	-4.1	-2.3	47.1	5.3
18	847180	Automatic Data Processing Units, N.E.S.O.I.	172.8	-211.9	-55.1	-14.8	-208.6	-54.7	47.6	2.3
19	852990	Pts,Ex Antenna,For Trnsmssn,Rdr,Radio,Tv,Etc Nesoi	166.8	54.2	48.1	1.7	78.0	87.8	4.0	3.9
20	841112	Turbojets Of A Thrust Exceeding 25 Kn	165.2	-206.8	-55.6	9.7	-104.9	-38.8	45.8	3.8
21	847141	Digital Adp Mach,With Cp Unit,Input,Output, Nesoi	162.2	44.4	37.7	-16.2	82.6	103.8	-6.2	15.3
22	854390	Pt Elec Mach & Appr W Individual Functions, Nesoi	153.1	-39.7	-20.6	-15.0	97.0	172.8	25.9	28.8
23	852610	Radar Apparatus	147.1	136.4	1,270.5	59.9	143.8	4,341.9	7.5	23.3
24	850440	Static Converters; Adp Power Supplies	144.5	-32.0	-18.1	-8.7	58.6	68.2	23.6	7.7
25	854110	Diodes Ex Photosensitive Or Light-Emitting Diodes	144.1	-97.1	-40.2	-28.7	67.6	88.4	24.8	14.5
26	847990	Pts Of Mach/MechncI Appl W Indvdl Function Nesoi	142.6	6.9	5.1	-19.1	61.3	75.4	22.5	5.8
27	900691	Parts And Accessories For Still Photo Cameras	139.5	83.8	150.4	60.6	63.7	84.0	45.4	66.1
28	392690	Articles Of Plastics, Nesoi	133.4	8.4	6.7	-9.9	47.1	54.5	35.9	3.7
29	847170	Automatic Data Processing Storage Units, N.E.S.O.I	130.8	39.1	42.7	-11.8	-44.8	-25.5	-20.7	3.4
30	902790	Pts Of Inst, Phys/Chem Analysis Etc, Nesoi	122.8	22.4	22.3	12.0	48.1	64.4	36.5	15.9
31	382200	Composite Diagnostic/Lab Reagents, Exc Pharmaceut	118.9	-12.8	-9.8	6.9	50.4	73.7	37.4	4.5
32	903290	Pts, Autom Regulating/Controlling Inst & Apprts	116.8	4.5	4.0	-6.3	87.0	291.4	21.6	17.2
33	847150	Digital Processing Units, N.E.S.O.I.	109.6	19.0	21.0	-14.8	-236.2	-68.3	1.1	2.9
34	902780	Phy Chem Ins/Appr;Meas Vscsty & Heat Nesoi	105.7	15.7	17.5	5.9	34.0	47.3	2.8	10.1
35	853400	Printed Circuits	103.8	3.3	3.3	-23.4	67.8	188.2	0.3	4.4
36	842199	Filter/Purify Machine & Apparatus Parts	101.9	4.7	4.8	2.1	66.5	187.9	45.5	11.3
37	841191	Turbojet And Turboproller Parts	97.9	5.3	5.7	4.5	-60.2	-38.1	8.6	1.4
38	410121	Bovine Hides & Skins, Whole, Nesoi, Fr Or Wet Salt	96.7	23.2	31.6	15.6	36.6	60.9	61.7	6.5
39	300210	Antisera And Blood Fractions, Immun Products	93.5	-7.8	-7.7	12.6	13.5	17.0	49.7	5.8
40	847989	Mach & Mechanical Appl W Individual Function Nesoi	87.6	-60.0	-40.7	-40.0	34.8	65.9	23.5	1.7

■ 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 6-Digit Harmonized System (HS) Commodities
Top 10 Gains and Losses 2000-2001 and 1998-2

		MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
HS	TOP 10 GROWTH CATEGORIES 2000-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
852610	Radar Apparatus	147.1	136.4	1,270.5	59.9	143.8	4,341.9	7.5	23.3
901839	Med Needles, Nesoi, Catherers Etc And Parts Etc	517.5	109.6	26.9	11.9	205.1	65.7	33.5	25.1
900691	Parts And Accessories For Still Photo Cameras	139.5	83.8	150.4	60.6	63.7	84.0	45.4	66.1
300490	Medicaments Nesoi, Measured Doses, Retail Pk Nesoi	302.6	81.9	37.1	35.9	201.3	198.8	138.2	4.6
901890	Instr & Appl F Medical Surgical Dental Vet, Nesoi	318.9	72.6	29.5	18.1	76.7	31.7	26.7	8.0
293799	Hormones And Deriv Nesoi, Steroids Etc Nesoi	237.7	54.5	29.8	17.2	154.7	186.3	78.5	92.9
852990	Pts,Ex Antenna,For Trnsmssn,Rdr,Radio,Tv,Etc Nesoi	166.8	54.2	48.1	1.7	78.0	87.8	4.0	3.9
901819	Electro-Diagnostic Apparatus Nesoi, And Parts Etc.	218.9	49.2	29.0	12.3	37.2	20.5	36.0	10.9
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	812.7	45.7	6.0	-27.6	304.7	60.0	21.3	3.1
847141	Digital Adp Mach,With Cp Unit,Input,Output, Nesoi	162.2	44.4	37.7	-16.2	82.6	103.8	-6.2	15.3
		MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
HS	TOP 10 GROWTH CATEGORIES 1998-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	811.8	-663.2	-45.0	-20.5	505.1	164.7	51.9	15.2
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	812.7	45.7	6.0	-27.6	304.7	60.0	21.3	3.1
901839	Med Needles, Nesoi, Catherers Etc And Parts Etc	517.5	109.6	26.9	11.9	205.1	65.7	33.5	25.1
300490	Medicaments Nesoi, Measured Doses, Retail Pk Nesoi	302.6	81.9	37.1	35.9	201.3	198.8	138.2	4.6
903082	Inst To Check Semiconduct Wafers &Such That Record	270.2	-229.4	-45.9	-49.7	190.0	237.1	24.4	28.4
293799	Hormones And Deriv Nesoi, Steroids Etc Nesoi	237.7	54.5	29.8	17.2	154.7	186.3	78.5	92.9
852610	Radar Apparatus	147.1	136.4	1,270.5	59.9	143.8	4,341.9	7.5	23.3
854390	Pt Elec Mach & Appr W Individual Functions, Nesoi	153.1	-39.7	-20.6	-15.0	97.0	172.8	25.9	28.8
903290	Pts, Autom Regulating/Controlling Inst & Apprts	116.8	4.5	4.0	-6.3	87.0	291.4	21.6	17.2
847141	Digital Adp Mach,With Cp Unit,Input,Output, Nesoi	162.2	44.4	37.7	-16.2	82.6	103.8	-6.2	15.3
		MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
HS	TOP 10 LOSSES 2000-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	811.8	-663.2	-45.0	-20.5	505.1	164.7	51.9	15.2
903089	Inst,Measuring/Checking Electrical Quantitie,Nesoi	33.6	-411.8	-92.5	-50.1	-181.0	-84.3	-41.1	5.4
854311	Particle Accelerators,Ion Implanters For Smcndctrs	199.3	-283.7	-58.7	-57.6	78.8	65.3	49.1	80.4
903082	Inst To Check Semiconduct Wafers &Such That Record	270.2	-229.4	-45.9	-49.7	190.0	237.1	24.4	28.4
847180	Automatic Data Processing Units, N.E.S.O.I.	172.8	-211.9	-55.1	-14.8	-208.6	-54.7	47.6	2.3
841112	Turbojets Of A Thrust Exceeding 25 Kn	165.2	-206.8	-55.6	9.7	-104.9	-38.8	45.8	3.8
847330	Parts & Accessories For Adp Machines & Units	718.1	-174.8	-19.6	-18.7	-532.8	-42.6	3.1	3.7
854230	Electronic Monolithic Integrated Circuit,N.E.S.O.I	319.4	-138.9	-30.3	-16.8	41.9	15.1	31.6	4.2
854110	Diodes Ex Photosensitive Or Light-Emitting Diodes	144.1	-97.1	-40.2	-28.7	67.6	88.4	24.8	14.5
930690	Bomb Mines Ot Ammtnion Projctions Etc And Parts	34.5	-96.8	-73.7	2.2	-49.8	-59.1	-2.7	2.5
		MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
HS	TOP 10 LOSSES 1998-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
847330	Parts & Accessories For Adp Machines & Units	718.1	-174.8	-19.6	-18.7	-532.8	-42.6	3.1	3.7
847150	Digital Processing Units, N.E.S.O.I.	109.6	19.0	21.0	-14.8	-236.2	-68.3	1.1	2.9
847180	Automatic Data Processing Units, N.E.S.O.I.	172.8	-211.9	-55.1	-14.8	-208.6	-54.7	47.6	2.3
903089	Inst,Measuring/Checking Electrical Quantitie,Nesoi	33.6	-411.8	-92.5	-50.1	-181.0	-84.3	-41.1	5.4
854214	Monolithic Digital Integ Circuits,Bipolar Tchology	14.9	-11.5	-43.5	-32.4	-163.7	-91.6	-55.9	1.7
841112	Turbojets Of A Thrust Exceeding 25 Kn	165.2	-206.8	-55.6	9.7	-104.9	-38.8	45.8	3.8
710691	Silver, Unwrought Nesoi	0.3	-0.9	-73.3	86.9	-97.6	-99.7	-77.4	0.3
901812	Ultrasonic Scanning Apparatus	47.9	-21.8	-31.3	-11.5	-84.1	-63.7	-14.0	10.5
370241	Phot Film No Sprocket Holes,Ov 610mm& Ov 200mm Cir	1.3	-75.4	-98.4	-53.0	-80.1	-98.5	-61.2	0.9
847190	Adp Mac&Unts Thereof;Mag/Opt Rder,Trnscr,Proc Dat	82.8	-32.7	-28.3	-29.6	-76.9	-48.2	-25.1	6.9

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

MA 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.²

As an example, Massachusetts has extremely high export growth and specialization in medical needles nesoi (not elsewhere specified or included), its fourth largest export commodity. Nevertheless, in certain markets including Ireland, Netherlands, Mexico, Australia, Italy, Denmark, Sweden, Germany, Costa Rica, and France, other states have grown twice as fast or have double the market penetration.

² 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 2001 (\$Mil)	MA %98-01	US %98-01	MA as %US	Potential Markets of Opportunity for Massachusetts (Top US growth markets 1998-2001 where MA growth or market penetration is low relative to US)
1	Metal Oxide Semiconductors(Mos),Mono Digital Integ	812.7	60.0	21.3	3.1	Mexico, Taiwan, Germany, Portugal, China, Japan, Brazil, Thailand, Malta And Gozo, Austria
2	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	811.8	164.7	51.9	15.2	Canada, Netherlands, Brazil, Italy, China, Malaysia, Argentina, Romania, Dom Rep, Macao
3	Parts & Accessories For Adp Machines & Units	718.1	-42.6	3.1	3.7	Canada, Germany, China, Korea, Thailand, Hong Kong, Czech Republic, Singapore, Venezuela, Chile
4	Med Needles, Nesoi, Catherers Etc And Parts Etc	517.5	65.7	33.5	25.1	Ireland, Netherlands, Mexico, Italy, Korea, China, Denmark, Sweden, Germany, Hong Kong
5	Electronic Monolithic Integrated Circuit,N.E.S.O.I	319.4	15.1	31.6	4.2	Mexico, Korea, Malaysia, Netherlands, Ireland, UK, France, Italy, Japan, Switzerland
6	Instr & Appl F Medical Surgical Dental Vet, Nesoi	318.9	31.7	26.7	8.0	Mexico, Italy, Spain, Romania, Korea, Brazil, Japan, S. Africa, Costa Rica, Seychelles
7	Medicaments Nesoi, Measured Doses, Retail Pk Nesoi	302.6	198.8	138.2	4.6	UK, Canada, France, Belgium, Japan, Netherlands, Mexico, Switzerland, Spain, Italy
8	Inst To Check Semiconduct Wafers &Such That Record	270.2	237.1	24.4	28.4	France, Italy, Thailand, Malta And Gozo, India, Bahamas, Qatar, Bulgaria, Brazil, Poland
9	Hormones And Deriv Nesoi, Steroids Etc Nesoi	237.7	186.3	78.5	92.9	Canada, Brazil, China, Thailand, Sweden, Korea, Uruguay, Netherlands, Israel, Hong Kong
10	Electro-Diagnostic Apparatus Nesoi, And Parts Etc.	218.9	20.5	36.0	10.9	Japan, Netherlands, China, India, Korea, Hong Kong, Ireland, Saudi Arabia, Israel, Spain
11	Monolithic Integrated Circuits, Digital, Nesoi	209.1	10.5	21.8	12.1	Philippines, Singapore, Korea, Thailand, Ireland, Malta/Gozo, Australia, Czech Republic, Slovenia, Ukraine
12	Digital Adp Mac & Units,Entered As Systems, Nesoi	205.3	-4.9	7.6	4.3	Mexico, Korea, China, Taiwan, Algeria, Thailand, Indonesia, Russia, Luxembourg, Costa Rica
13	Particle Accelerators,Ion Implanters For Smcndctrs	199.3	65.3	49.1	80.4	Canada, Switzerland, Belgium, Thailand, Sweden, Mexico, Hong Kong, Venezuela, Guatemala, Costa Rica
14	Pts Of Inst F Meas Elect Quat Alpha Beta Inzng Rdt	198.4	69.9	56.0	14.6	Singapore, Malaysia, UK, Israel, Mexico, India, Ireland, Korea, Finland, Thailand
15	Telephonic Or Telegraphic Switching Apparatus	181.8	-9.2	-26.9	14.9	Korea, UK, Netherlands, Belgium, Italy, Philippines, Hong Kong, Egypt, Israel, Netherlands Antilles
16	Razors	176.4	59.5	31.7	85.7	China, Mexico, Venezuela, Hong Kong, Argentina, Uruguay, Nicaragua, Suriname, Bahrain, Aruba
17	Telecomm Apprtus,Carrier-Cur & Digital Systm,Nesoi	175.2	-2.3	47.1	5.3	Netherlands, Belgium, Mexico, UK, Korea, China, Spain, Colombia, Dom Rep, Thailand
18	Automatic Data Processing Units, N.E.S.O.I.	172.8	-54.7	47.6	2.3	Japan, China, Canada, Hong Kong, Mexico, UK, Korea, Singapore, Ireland, Taiwan
19	Pts,Ex Antenna,For Trnsmssn,Rdr,Radio,Tv,Etc Nesoi	166.8	87.8	4.0	3.9	Mexico, China, Canada, Singapore, Malaysia, Indonesia, Algeria, Egypt, Hungary, Australia
20	Turbojets Of A Thrust Exceeding 25 Kn	165.2	-38.8	45.8	3.8	France, Canada, Brazil, Germany, Singapore, UK, Ireland, Jamaica, Kenya, Belgium
21	Digital Adp Mach,With Cp Unit,Input,Output, Nesoi	162.2	103.8	-6.2	15.3	Netherlands, Hong Kong, Korea, Kuwait, India, Turkey, Australia, UAE, Sri Lanka, Belgium
22	Pt Elec Mach & Appr W Individual Functions, Nesoi	153.1	172.8	25.9	28.8	Mexico, Ireland, Greece, Costa Rica, Dom Rep, Philippines, Switzerland, Macao, Chile, Canada
23	Radar Apparatus	147.1	4,341.9	7.5	23.3	Algeria, Korea, Japan, Egypt, France, Croatia, Mexico, Czech Republic, Ecuador, China
24	Static Converters; Adp Power Supplies	144.5	68.2	23.6	7.7	China, Netherlands, UK, Ghana, Korea, Taiwan, Philippines, Singapore, Brunei, India
25	Diodes Ex Photosensitive Or Light-Emitting Diodes	144.1	88.4	24.8	14.5	Thailand, UK, Canada, Japan, Singapore, Bermuda, Brunei, Belgium, Peru, Australia
26	Pts Of Mach/Mechnci Appl W Indvdul Function Nesoi	142.6	75.4	22.5	5.8	Singapore, Thailand, Austria, Chile, Israel, Malaysia, Sweden, Ireland, Poland, Nicaragua
27	Parts And Accessories For Still Photo Cameras	139.5	84.0	45.4	66.1	Hong Kong, China, France, Nicaragua, Costa Rica, Canada, Panama, Iceland, Hungary, Thailand
28	Articles Of Plastics, Nesoi	133.4	54.5	35.9	3.7	Mexico, Australia, Philippines, Honduras, Dom Rep, Thailand, Italy, Czech Republic, Costa Rica, UAE
29	Automatic Data Processing Storage Units, N.E.S.O.I	130.8	-25.5	-20.7	3.4	Mexico, Hungary, Korea, Thailand, Chile, Hong Kong, Dom Rep, Israel, Netherlands Antilles, Venezuela
30	Pts Of Inst, Phys/Chem Analysis Etc, Nesoi	122.8	64.4	36.5	15.9	Spain, Germany, Mexico, Singapore, Saudi Arabia, Malaysia, Chile, Denmark, Algeria, Turkey
31	Composite Diagnostic/Lab Reagents, Exc Pharmaceut	118.9	73.7	37.4	4.5	UK, Japan, Israel, Sweden, China, Ireland, Spain, India, UAE, New Zealand
32	Pts, Autom Regulating/Controlling Inst & Apprts	116.8	291.4	21.6	17.2	Finland, UAE, Hong Kong, Canada, Egypt, Greece, Panama, Bolivia, Costa Rica, Dom Rep
33	Digital Processing Units, N.E.S.O.I.	109.6	-68.3	1.1	2.9	Mexico, Korea, Colombia, Japan, Israel, Venezuela, Finland, Malaysia, Ecuador, Spain
34	Phy Chem Ins/Appr;Meas Vscsty & Heat Nesoi	105.7	47.3	2.8	10.1	Canada, Germany, Mexico, India, Czech Republic, Poland, Qatar, Sweden, Bangladesh, Venezuela

■ 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 2001 (\$Mil)	MA %98-01	US %98-01	MA as %US	Potential Markets of Opportunity for Massachusetts (Top US growth markets 1998-2001 where MA growth or market penetration is low relative to US)
35	Printed Circuits	103.8	188.2	0.3	4.4	China, Brazil, Sweden, Iceland, New Zealand, Austria, Ecuador, Brunei, Bahrain, Dom Rep
36	Filter/Purify Machine & Apparatus Parts	101.9	187.9	45.5	11.3	Canada, Mexico, Taiwan, China, Saudi Arabia, Malaysia, Thailand, Germany, Angola, UAE
37	Turbojet And Turboproller Parts	97.9	-38.1	8.6	1.4	Singapore, Mexico, Italy, Taiwan, India, Malaysia, Australia, Brazil, Israel, Ireland
38	Bovine Hides & Skins, Whole, Nesoi, Fr Or Wet Salt	96.7	60.9	61.7	6.5	Switzerland, Germany, Indonesia, India, Uruguay, Netherlands, Turkey, Belgium, Poland, Croatia
39	Antisera And Blood Fractions, Immun Products	93.5	17.0	49.7	5.8	Belgium, Spain, UK, Canada, Switzerland, Saudi Arabia, Taiwan, Australia, Russia, Turkey
40	Mach & Mechanical Appl W Individual Function Nesoi	87.6	65.9	23.5	1.7	Germany, Taiwan, Singapore, France, Austria, Poland, Hong Kong, Hungary, Norway, Thailand
41	Lobsters, Live, Fresh,Ch, Dried, SaltD Or In Brine	86.8	40.3	50.0	36.0	Canada, France, Ireland, Bahrain, Hong Kong, Portugal, Japan, Luxembourg, Fr Polynesia, Venezuela
42	Laser Discs,For Reproducing Other Than Sound/Image	86.7	-29.5	4.9	7.4	Canada, Mexico, UK, Turkey, Philippines, China, El Salvador, Chile, Finland, Jamaica
43	Adp Mac&Unts Thereof;Mag/Opt Rder,Tmscrb,Proc Dat	82.8	-48.2	-25.1	6.9	Mexico, Paraguay, Brazil, China, Netherlands, French Guiana, Vietnam, Portugal, Jordan, Ghana
44	Golf Balls	80.8	71.0	61.7	52.1	Canada, Malaysia, Korea, Hong Kong, UAE, Uruguay, Mexico, China, Switzerland, Indonesia
45	Beverage Filtering Or Purifying Mach & Apparatus	72.5	170,151.8	594.1	71.1	Australia, Germany, UK, Netherlands, Uruguay, Chile, Barbados, El Salvador, China, Thailand
46	Audio-Frequency Electric Amplifiers	68.4	806.6	183.6	8.4	Japan, China, Netherlands Antilles, UK, Korea, Finland, France, Singapore, Hong Kong, Spain
47	Printed Books, Brochures, Etc., Nesoi	67.7	-35.9	-4.6	3.8	Mexico, Korea, UK, Nigeria, Taiwan, Malaysia, Cayman Islands, India, Kenya, Ghana
48	Spctmtr Sptcrphtmtr Etc Using Optical Radiations	66.5	21.8	9.4	20.0	Canada, China, France, Chile, Venezuela, Italy, Malaysia, Finland, Spain, Portugal
49	Recorded Media For Reproducing Snd Or Image, Nesoi	64.9	-6.8	-27.0	11.6	Korea, India, Hong Kong, China, Canada, Luxembourg, Poland, Algeria, Turkey, Kazakhstan
50	Pt F Elect Appr F Elect Cirt; F Elct Contrl Nesoi	63.4	-16.4	-1.5	4.2	Germany, Thailand, Philippines, Israel, Singapore, Hong Kong, Luxembourg, Ireland, Malaysia, Netherlands
51	Electronic Integrated Circuits And Mcrssmbls Parts	62.5	-46.1	-9.6	5.3	Korea, Germany, Mexico, Denmark, Finland, Austria, India, Hungary, Indonesia, Czech Republic
52	Artificial Joints And Parts And Accessories	62.4	-2.0	25.8	12.6	UK, Japan, Italy, Germany, Spain, Turkey, Australia, Hong Kong, Switzerland, Singapore
53	Paper, Paperbd, Cellulose Wadd Etc, Coat Etc Nesoi	61.7	31.3	36.1	19.0	China, Brazil, Taiwan, Belgium, Korea, Chile, Japan, India, Ireland, Venezuela
54	Elect Plugs & Sockets F Voltage Not Over 1000 V	60.4	162.6	29.8	3.8	Mexico, Germany, Netherlands, China, Malaysia, Brazil, Korea, Spain, Israel, Hungary
55	Chromatographs And Electrophoresis Instruments	60.4	26.6	19.2	12.8	Germany, Japan, Belgium, Hong Kong, Taiwan, New Zealand, Australia, Spain, Saudi Arabia, Switzerland
56	Port Digtl Automatic Data Process Mach Not > 10 Kg	59.8	-11.0	31.6	4.1	Mexico, Dom Rep, UK, Hong Kong, Canada, Colombia, Venezuela, Korea, Netherlands, Belgium
57	X-Ray/Hi Tnsn Genr Cntr Pnl & Dsk Exm/Trtmnt Tb Pt	57.6	213.5	49.3	9.3	France, Germany, India, Brazil, Singapore, Netherlands, Ireland, Venezuela, Spain, Greece
58	Photosnsitive Semicndctr Dvice Inc Phtvltc Cell Etc	56.6	239.7	40.4	4.7	Hong Kong, Japan, Canada, Mexico, Israel, France, Italy, Spain, India, Finland
59	Tantalum Electrolytic Fixed Capacitors	56.4	68.9	37.2	19.4	Mexico, Brazil, Malaysia, Portugal, Philippines, Spain, Dom Rep, Argentina, Czech Republic, Austria
60	Parts Of Airplanes Or Helicopters, Nesoi	55.9	34.0	4.5	0.4	Korea, Netherlands, Brazil, Italy, Germany, Thailand, Portugal, China, Algeria, Bahrain
61	Orthpdc/Fractr Appl (Ex Art Joint/Pt),Pt & Access	55.7	423.3	37.9	10.1	Mexico, Netherlands, Hong Kong, Poland, India, Denmark, Brazil, Finland, Lebanon, Costa Rica
62	Unwrought Tantalum; Tantalum Waste, Scrap & Powder	54.1	69.3	137.3	42.5	Israel, UK, Sweden, Netherlands, China, Austria, Australia, Italy, Canada, Switzerland
63	Electronic Hybrid Integrated Circuits	53.8	234.8	14.9	5.9	Brazil, Taiwan, Singapore, China, Ireland, Australia, Sweden, Malaysia, Spain, Belgium
64	Mach & Equip, Nesoi, F Making Print Blocks, Plates	51.6	446.6	32.8	42.9	Switzerland, Canada, Turkey, Austria, Philippines, Costa Rica, Dom Rep, UK, Bangladesh, Ireland
65	Elect Switches F Voltage Not Over 1000 V, Nesoi	51.1	-6.7	25.3	4.4	Mexico, Canada, Dom Rep, Germany, Korea, China, France, Brunei, India, Netherlands
66	Optical Inst For Inspecting Semiconductor Wafers	50.9	156.7	50.3	5.6	Japan, Canada, Austria, Ireland, Sweden, Hong Kong, Malaysia, Australia, Thailand, Norway
67	Safety Razor Blades And Blade Blanks In Strips	50.7	-39.1	-10.6	43.9	China, Germany, Hong Kong, Venezuela, Uruguay, Thailand, Russia, Pakistan, Cocos Islands, Spain
68	Multiple Loudspeakers, Mounted In Same Enclosure	48.0	421.8	39.2	30.4	Denmark, Mexico, Canada, Spain, Netherlands, China, Finland, UK, Philippines, Senegal

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Table 2.3 (Continued)

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

	Massachusetts's Top 100 Export Commodities	MA 2001	MA	US	MA as	Potential Markets of Opportunity for Massachusetts
		(\$Mil)	%98-01	%98-01	%US	(Top US growth markets 1998-2001 where MA growth or market penetration is low relative to US)
69	Ultrasonic Scanning Apparatus	47.9	-63.7	-14.0	10.5	UK, Canada, Korea, Spain, Thailand, Netherlands, Belgium, Malaysia, Ukraine, Philippines
70	Inst & Apprts, Measuring/Checking Pressure	47.5	46.5	60.7	11.4	Canada, France, Germany, Brazil, Mexico, Qatar, Hong Kong, Sweden, S. Africa, Taiwan
71	Plates Etc, Noncell Etc, No R, Polyvinyl Butyral	47.3	-16.2	13.4	22.4	China, S. Africa, Italy, Thailand, Australia, Germany, Argentina, Egypt, India, Costa Rica
72	Paper And Paperboard, Nesoi, Not Over 150 G/M2, Uc	46.8	-1.0	-16.5	33.8	Hong Kong, Costa Rica, Jamaica, Sri Lanka, Ireland, Greece, Panama, Zimbabwe, New Zealand, Philippine
73	Ferrous Waste & Scrap Nesoi	45.4	7.2	26.3	9.5	Canada, Indonesia, Greece, Dom Rep, Bahamas, France, Switzerland, Spain, Netherlands, Belgium
74	Elec Cond Ov 80v Nov 1000v Not Fitted W Connector	44.3	164.2	17.8	8.2	Mexico, Sweden, Japan, Trinidad, Kuwait, Argentina, Malta And Gozo, Ecuador, UAE, Malaysia
75	Gas Turbine Parts Nesoi	44.1	-37.6	41.1	1.4	Canada, Brazil, France, Turkey, Germany, Mexico, Israel, Spain, UAE, Belgium
76	Food Preparations Nesoi	43.8	0.4	10.6	2.7	Korea, Israel, Taiwan, China, Mexico, Netherlands, Switzerland, Malaysia, Singapore, Vietnam
77	Meas & Checkng Instrument, Appliances & Mach Nesoi	43.7	-14.4	7.6	4.4	Mexico, Canada, Germany, UAE, Taiwan, Saudi Arabia, Belgium, Norway, Egypt, Romania
78	Looped Pile Fabrics Man-Made Fiber,Knit Or Crochet	43.6	-5.0	-8.0	64.3	Mexico, Nicaragua, Hong Kong, Germany, Brazil, Slovakia, Czech Republic, Russia, Moldova, Belarus
79	Loudspeakers, Nesoi	42.8	1,025.5	8.5	17.4	Belgium, China, Singapore, Korea, Austria, Finland, Denmark, Panama, Malaysia, Spain
80	Adp Input Or Output Units, Storage Or Not, Nesoi	42.6	-55.7	2.4	1.3	Mexico, Israel, China, Malaysia, Thailand, Dom Rep, Uruguay, Hong Kong, Venezuela, Colombia
81	Air/Gas Pump, Compressor And Fan Etc Parts, Nesoi	41.2	95.6	37.6	3.5	Mexico, China, Venezuela, Brazil, Thailand, Argentina, Ireland, Netherlands, UAE, Kuwait
82	Bandsaw Blades, And Base Metal Parts Thereof	40.8	92.1	29.8	56.8	Mexico, Germany, Costa Rica, UK, China, Australia, France, Malaysia, Hong Kong, Philippines
83	Pts Micro-Head-Ear-Phone,Elect Snd Ampl Sets Etc	40.2	302.0	56.1	11.1	Germany, Japan, Malaysia, Singapore, UK, Brazil, Austria, China, Taiwan, Philippines
84	Oth Inst, Specially Designed For Telecommunication	40.0	254.3	71.8	3.6	China, Korea, Japan, Taiwan, Mexico, France, Australia, Argentina, Finland, Malaysia
85	Polycarbonates, Pr Fms	39.5	53.0	37.4	5.3	Taiwan, Canada, Belgium, China, Korea, Argentina, Hong Kong, Brazil, Germany, Malaysia
86	Auto Regulating Ins & Appr Ex Throstat,Mnstat, Etc	39.4	-14.1	16.9	1.9	Mexico, Japan, Canada, Austria, Australia, UK, Trinidad, Saudi Arabia, Russia, UAE
87	Othr Recorded Media,Nesoi,For Reprod Othr Than S/I	39.0	-53.8	-45.1	7.3	S. Africa, Hungary, Egypt, Peru, Singapore, Ecuador, Colombia, Guatemala, Pakistan, Bolivia
88	Transmission Apparatus For Radio Or Television	38.9	40.0	21.2	2.6	Mexico, Japan, Germany, Korea, Denmark, Venezuela, India, Singapore, Nigeria, Malaysia
89	Hormones Etc. (No Antibiotics Contained) Dosage Fm	38.7	-44.9	118.2	14.9	UK, Canada, Switzerland, Germany, Japan, China, Argentina, Mexico, Australia, Korea
90	Mach Tools Fr Dry Etching Patterns On Semicond Mat	38.1	153.1	20.6	5.3	Japan, Malaysia, China, Austria, Israel, Canada, Belgium, Switzerland, Poland, Slovakia
91	Primary Cells And Batteries, Manganese Dioxide	37.6	7,153.8	18.5	12.4	Hong Kong, France, China, Dom Rep, Singapore, Korea, Chile, Bolivia, Jamaica, Ecuador
92	Tantalum And Articles Thereof, Nesoi	37.0	134.1	215.0	40.9	Germany, Mexico, UK, Israel, Taiwan, Netherlands, Korea, China, Canada, Hungary
93	Semicndctr Dvice Ex Photosensitive/Photovoltaic Ci	36.5	711.4	50.9	8.0	Singapore, Malaysia, Mexico, Italy, China, Netherlands, Brazil, Switzerland, Korea, Denmark
94	Paintings, Drawing And Pastels By Hand	36.1	122.8	58.0	1.3	UK, Japan, France, Germany, Austria, Korea, Argentina, Taiwan, Singapore, China
95	Chemical Sensitizing Emulsions For Photo Uses	35.5	118.3	97.9	56.1	China, France, Belgium, Canada, Ireland, Venezuela, Chile, Argentina, Costa Rica, Portugal
96	Industrial, Laboratory Furnaces, Ovens, Nesoi	35.0	42.5	88.7	9.3	Japan, Taiwan, Singapore, Germany, Italy, France, Canada, Israel, Belgium, UK
97	Bomb Mines Ot Ammntion Projctions Etc And Parts	34.5	-59.1	-2.7	2.5	Taiwan, UK, France, Spain, Israel, Austria, New Zealand, Ireland, Singapore, Bahrain
98	Flat-Rolled Stnls Stil Und 600mm Wide, Cld-Rld	34.1	146.8	31.1	21.8	Canada, Mexico, Italy, Belgium, Brazil, Korea, Hong Kong, India, Malaysia, Spain
99	Printing Machinery, Except Units Of 8471, Nesoi	34.1	-41.5	-30.4	21.5	Japan, Honduras, India, Brazil, Dom Rep, New Zealand, El Salvador, Morocco, Bangladesh, Pakistan
100	Inst,Measuring/Checking Electrical Quantitie,Nesoi	33.6	-84.3	-41.1	5.4	Israel, Denmark, Mexico, Hong Kong, Canada, Malaysia, Egypt, Vietnam, Dom Rep, Bolivia

■ 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; Parts

This sector is comprised heavily of products that feed the telecommunications and semiconductor industries. Last year exports dropped in seven out of 10 product areas. The most notable exceptions were in radar apparatus and the related product group of parts, excluding antenna, for transmission of radar, radio and TV.

Export losses for the sector were spread across a number of markets with the biggest drops coming in Canada, Taiwan, and the Netherlands. The most significant decline by region was in Asia which absorbed over 29% of the decrease among Japan, Taiwan, China and Malaysia. The exception to the general decline in Asia was the Philippines to which exports grew 32.1% in 2001. The Philippine increase was driven by the sale of radar related products.

Industrial Machinery, Including Computers

The long term downturn in the export of automatic data processing units and related products (i.e. parts and accessories for adp machines & units; and digital adp machines and units, entered as systems) is apparent from the figures in this sector. These three product areas alone accounted for 43.2% of the export decline in the industrial machinery category in 2001. One exception to the trend is digital adp machines, with cp units, input, output. Exports of products in this grouping grew by 37.7 % in 2001 and have advanced 103.8% over the last four years.

Export losses in industrial machinery, including computers, were widespread across markets in Canada, Europe and Asia. The biggest drops by sales volume came in Canada, Japan and the United Kingdom. The only market among the top 10 to show any positive export growth for this commodity group was Singapore.

Optic, Photo, etc., Medical or Surgical Instruments, etc.

Table 3 shows the strength of the optic, photo, medical/surgical instrument product group relative to competitors in other parts of the US. Massachusetts exporters in this sector have outperformed the rest of the country consistently in all but one of the 10 illustrated product areas over the past four years. The drop in exports recorded for this sector in 2001 was primarily due to a decline in one product area -- instruments to check semiconductor wafers.

The biggest single market loss by volume for the sector was to Taiwan -- one of the world's largest manufacturers of semiconductors. The next two biggest declines were also in Asia. Export sales to Singapore and Korea fell by 37.1% and 35.5%, respectively.

Plastics and Articles Thereof

Plastics and articles thereof represent the first category within what may be thought of as the second tier of Massachusetts export products. The total volume of exports within this commodity group equals only 21% of the group ranked just above it (optic, photo etc., medical or surgical instruments).

The top markets for Massachusetts plastics in 2001 were in Europe -- specifically, Belgium, the U.K., and Germany. Hong Kong, Singapore, and Brazil also registered positive growth. All six of these markets have grown consistently since 1998 and represent "markets of specialization" as indicated by the figures in the column on the far right in Table 4.

Pharmaceutical Products

Pharmaceutical products represent one of the fastest growing commodity groups for export in the Commonwealth. (50.4% increase since 1998.) The sector is currently dominated by medicaments nesoi (not elsewhere specified or indicated) which accounts for 61% of all exports within the 2-digit grouping. The United Kingdom is the most important market for the state's pharmaceutical products followed by Japan. The fastest growing markets for pharmaceuticals are Ireland and Argentina.

**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 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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
85	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	5,462.1	-1,555.6	-22.2	-17.4	1,548.3	39.6	13.0	4.5
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	812.7	45.7	6.0	-27.6	304.7	60.0	21.3	3.1
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	811.8	-663.2	-45.0	-20.5	505.1	164.7	51.9	15.2
854230	Electronic Monolithic Integrated Circuit,N.E.S.O.I	319.4	-138.9	-30.3	-16.8	41.9	15.1	31.6	4.2
854219	Monolithic Integrated Circuits, Digital, Nesoi	209.1	-80.3	-27.7	-18.6	19.9	10.5	21.8	12.1
854311	Particle Accelerators,Ion Implanters For Smcndctrs	199.3	-283.7	-58.7	-57.6	78.8	65.3	49.1	80.4
851730	Telephonic Or Telegraphic Switching Apparatus	181.8	-48.1	-20.9	-10.6	-18.3	-9.2	-26.9	14.9
851750	Telecomm Apprtus,Carrier-Cur & Digital Systm,Nesoi	175.2	-14.1	-7.5	-12.9	-4.1	-2.3	47.1	5.3
852990	Pts,Ex Antenna,For Trnsmssn,Rdr,Radio,Tv,Etc Nesoi	166.8	54.2	48.1	1.7	78.0	87.8	4.0	3.9
854390	Pt Elec Mach & Appr W Individual Functions, Nesoi	153.1	-39.7	-20.6	-15.0	97.0	172.8	25.9	28.8
852610	Radar Apparatus	147.1	136.4	1,270.5	59.9	143.8	4,341.9	7.5	23.3
84	Industrial Machinery, Including Computers	3,554.8	-976.3	-21.5	-8.7	-1,188.0	-25.0	6.6	2.5
847330	Parts & Accessories For Adp Machines & Units	718.1	-174.8	-19.6	-18.7	-532.8	-42.6	3.1	3.7
847149	Digital Adp Mac & Units,Entered As Systems, Nesoi	205.3	-35.3	-14.7	1.3	-10.6	-4.9	7.6	4.3
847180	Automatic Data Processing Units, N.E.S.O.I.	172.8	-211.9	-55.1	-14.8	-208.6	-54.7	47.6	2.3
841112	Turbojets Of A Thrust Exceeding 25 Kn	165.2	-206.8	-55.6	9.7	-104.9	-38.8	45.8	3.8
847141	Digital Adp Mach,With Cp Unit,Input,Output, Nesoi	162.2	44.4	37.7	-16.2	82.6	103.8	-6.2	15.3
847990	Pts Of Mach/Mechncd Appl W Indvdul Function Nesoi	142.6	6.9	5.1	-19.1	61.3	75.4	22.5	5.8
847170	Automatic Data Processing Storage Units, N.E.S.O.I	130.8	39.1	42.7	-11.8	-44.8	-25.5	-20.7	3.4
847150	Digital Processing Units, N.E.S.O.I.	109.6	19.0	21.0	-14.8	-236.2	-68.3	1.1	2.9
842199	Filter/Purify Machine & Apparatus Parts	101.9	4.7	4.8	2.1	66.5	187.9	45.5	11.3
841191	Turbojet And Turboproller Parts	97.9	5.3	5.7	4.5	-60.2	-38.1	8.6	1.4
90	Optic, Photo Etc, Medic Or Surgical Instrmnts Etc	3,293.4	-322.5	-8.9	-1.8	767.1	30.4	23.5	7.4
901839	Med Needles. Nesoi, Catherers Etc And Parts Etc	517.5	109.6	26.9	11.9	205.1	65.7	33.5	25.1
901890	Instr & Appl F Medical Surgical Dental Vet, Nesoi	318.9	72.6	29.5	18.1	76.7	31.7	26.7	8.0
903082	Inst To Check Semiconduct Wafers &Such That Record	270.2	-229.4	-45.9	-49.7	190.0	237.1	24.4	28.4
901819	Electro-Diagnostic Apparatus Nesoi, And Parts Etc.	218.9	49.2	29.0	12.3	37.2	20.5	36.0	10.9
903090	Pts Of Inst F Meas Elect Quat Alpha Beta Inzng Rdt	198.4	-6.7	-3.2	-6.4	81.6	69.9	56.0	14.6
900691	Parts And Accessories For Still Photo Cameras	139.5	83.8	150.4	60.6	63.7	84.0	45.4	66.1
902790	Pts Of Inst, Phys/Chem Analysis Etc, Nesoi	122.8	22.4	22.3	12.0	48.1	64.4	36.5	15.9
903290	Pts, Autom Regulating/Controlling Inst & Apprts	116.8	4.5	4.0	-6.3	87.0	291.4	21.6	17.2
902780	Phy Chem Ins/Appr;Meas Vscsty & Heat Nesoi	105.7	15.7	17.5	5.9	34.0	47.3	2.8	10.1
902730	Spctmtr Spctrphtmtr Etc Using Optical Radiations	66.5	4.0	6.4	15.1	11.9	21.8	9.4	20.0
39	Plastics And Articles Thereof	681.1	17.7	2.7	-4.5	126.8	22.9	18.6	2.5
392690	Articles Of Plastics, Nesoi	133.4	8.4	6.7	-9.9	47.1	54.5	35.9	3.7
392091	Plates Etc, Noncell Etc, No R, Polyvinyl Butyral	47.3	20.0	73.3	10.4	-9.1	-16.2	13.4	22.4
390740	Polycarbonates, Pr Fms	39.5	-7.0	-15.0	-5.1	13.7	53.0	37.4	5.3
391990	Plates, Sheets, Film Etc, Plastics, Self-Adh Nesoi	27.8	-15.1	-35.2	-9.0	-3.3	-10.5	3.6	4.8
392069	Plates Etc, Noncell Etc, No Rein, Polyesters Nesoi	26.6	-24.2	-47.7	-21.5	-37.7	-58.7	-15.9	22.0
390950	Polyurethanes, In Primary Forms	26.1	5.8	28.6	0.6	15.7	152.2	13.8	8.0
392190	Plates, Sheets, Film Etc, Plastic Nesoi Ncel Nesoi	23.7	3.5	17.6	-8.5	12.4	109.2	6.9	5.4
392113	Plates, Sheets Etc. Nesoi, Cellular Polyurethanes	23.5	4.0	20.4	18.5	14.6	163.5	25.2	12.4
390690	Acrylic Polymers Nesoi, In Primary Forms	23.4	1.8	8.3	4.1	9.7	70.5	8.9	3.1
391000	Silicones, In Primary Forms	21.6	-2.2	-9.4	-9.3	2.6	14.0	-11.3	4.9

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Table 3 (Continued)
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		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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
30	Pharmaceutical Products	495.7	50.8	11.4	18.8	166.0	50.4	65.6	4.0
300490	Medicaments Nesoi, Measured Doses, Retail Pk Nesoi	302.6	81.9	37.1	35.9	201.3	198.8	138.2	4.6
300210	Antisera And Blood Fractions, Immun Products	93.5	-7.8	-7.7	12.6	13.5	17.0	49.7	5.8
300439	Hormones Etc. (No Antibiotics Contained) Dosage Fm	38.7	0.3	0.7	27.8	-31.6	-44.9	118.2	14.9
300590	Wadding, Gauze And Similar Articles Etc Nesoi	17.4	8.4	93.3	11.0	12.2	235.0	31.3	12.9
300339	Medicament Cont Hormones, No Antibiotics, No Doses	10.5	-4.6	-30.6	-38.3	9.7	1,261.9	-28.0	24.7
300290	Human Blood; Animal Blood Prep, Toxins, Cultrs Etc	9.7	2.7	38.6	-25.4	-5.5	-36.0	-55.9	4.1
300610	Sterile Surgical Catgut, Similar Sterile Mater Etc	6.9	0.6	9.6	28.7	2.7	65.2	60.5	3.5
300630	Opacifying Preparations For X-Ray Examinations Etc	3.2	-0.3	-7.9	-24.6	0.8	35.3	-24.8	4.5
300510	Adhesive Dressings And Other Artcl Having Adh Lay	1.9	-0.7	-27.7	14.9	0.4	24.9	47.8	0.8
300190	Heparin And Its Salts; Other Human Or Animal Subst	1.6	-1.8	-53.2	-16.1	-0.3	-18.2	-31.4	0.9
48	Paper & Paperboard & Articles (Inc Papr Pulp Artl)	329.5	-45.2	-12.1	-6.1	29.9	10.0	4.3	3.0
481190	Paper, Paperbd, Cellulose Wadd Etc, Coat Etc Nesoi	61.7	-3.0	-4.7	10.9	14.7	31.3	36.1	19.0
480560	Paper And Paperboard, Nesoi, Not Over 150 G/M2, Uc	46.8	1.3	2.9	-18.8	-0.5	-1.0	-16.5	33.8
480252	Paper Nesoi, Nov 10% Fib Mech Pr, 40g/M2nov150g/M2	33.0	1.7	5.4	-15.1	28.3	603.5	12.4	10.6
480251	Paper Nesoi, Nov 10% Fiber By Mech Pr, Un40g/M2 Uc	11.3	-21.4	-65.5	0.4	1.1	10.9	77.3	17.4
480411	Kraftliner, Uncoated Unbleached In Rolls Or Sheets	8.9	-7.9	-47.1	-19.3	-7.6	-45.9	-21.1	0.9
481920	Folding Cartons, Boxes Etc, Noncor Paper & Paperbd	8.2	-0.4	-5.0	26.9	-7.3	-47.2	36.6	2.3
482390	Articles Of Ppr Pulp/Ppr/Pprbrd/Cellulose Etc Nesoi	8.1	-1.2	-13.1	-9.4	2.0	32.5	0.1	3.4
481139	Paper & Paperbd Coated, Etc, With Plastics Nesoi	7.6	-3.1	-28.6	0.2	0.1	1.0	29.4	3.1
481131	Paper Nesoi, Ov150g/M2, Bleach, Impr Or Plast Covr	7.5	1.3	20.7	1.7	-1.2	-13.6	1.9	1.6
481011	Paper, Writ Etc, Nov 10% Mech Pr Fib Nov150g/M2 Ct	7.5	-3.0	-28.5	11.7	-7.3	-49.2	12.5	1.9
82	Tools, Cutlery Etc. Of Base Metal & Parts Thereof	310.6	38.7	14.2	-4.6	62.0	24.9	6.8	10.8
821210	Razors	176.4	26.4	17.6	19.9	65.8	59.5	31.7	85.7
821220	Safety Razor Blades And Blade Blanks In Strips	50.7	-8.9	-15.0	14.5	-32.5	-39.1	-10.6	43.9
820220	Bandsaw Blades, And Base Metal Parts Thereof	40.8	12.4	43.7	4.8	19.6	92.1	29.8	56.8
820559	Handtools Nesoi, And Parts, Of Base Metal	4.9	2.6	114.0	-15.0	2.3	86.1	0.1	2.4
820730	Tools For Pressing, Stamping Or Punching, B M Pts	4.8	-1.9	-28.3	-15.7	1.3	37.6	-2.9	1.4
820299	Saw Blades Nesoi And Parts, Of Base Metal Nesoi	4.2	0.3	6.7	-11.2	0.5	13.4	15.0	15.3
821290	Parts For Razors Exc Blades	3.6	1.8	101.3	-58.1	1.6	82.4	-12.2	24.2
820740	Tools For Tapping Or Threading, Pts, Of Bs Mtl	3.3	0.8	32.5	-7.3	1.6	98.3	1.8	10.9
821490	Articles Of Cutlery Nesoi A Base Metal Parts	2.6	2.6	4,439.8	31.2	2.5	3,339.9	10.0	35.1
820291	Straight Saw Blades For Working Metal, Bs Mtl	2.0	0.5	32.1	-7.6	0.5	30.0	-8.0	26.3
29	Organic Chemicals	279.7	62.4	28.7	-8.1	168.2	150.9	14.8	1.4
293799	Hormones And Deriv Nesoi, Steroids Etc Nesoi	237.7	54.5	29.8	17.2	154.7	186.3	78.5	92.9
293100	Organo-Inorganic Compounds Nesoi	15.4	6.0	63.9	-3.3	13.9	889.3	3.8	1.9
292130	Cyclanic, Cyclenic Etc Mono- Or Polyamines Etc	2.9	0.5	19.4	46.9	0.9	48.6	73.5	4.5
293500	Sulfonamides	2.1	1.9	878.1	11.8	2.1	71,487.8	106.1	0.9
293629	Vitamins And Their Derivatives, Unmixed, Nesoi	1.7	1.2	290.3	-6.6	1.5	927.5	17.0	2.3
293351	Malonylurea (Barbituric Acid) And Its Deriv Etc	1.4	1.4	30,726.7	186.2	0.4	43.0	16.3	64.9
292090	Esters Of Other Inorganic Acids, Etc Nesoi	1.0	0.1	16.2	-21.0	0.6	120.1	13.7	0.9
293490	Heterocyclic Compounds Nesoi	1.0	0.8	410.5	-4.6	0.8	348.4	-20.9	0.4
293359	Comp With Pyrimidine Or Piperazine Ring, Nesoi	0.9	0.1	19.9	-11.0	-0.2	-16.0	-11.0	0.7
293729	Adrenal Cortical Hormones And Deriv Nesoi	0.7	0.3	98.0	-6.8	0.7	NA	2.6	1.3

■ 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
Dollar Value of Shipments in Millions

		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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
3	Fish, Crustaceans & Aquatic Invertebrates	218.9	-3.9	-1.8	7.2	15.4	7.6	42.6	7.7
30622	Lobsters, Live, Fresh,Ch, Dried, Salted Or In Brine	86.8	0.1	0.1	-5.6	24.9	40.3	50.0	36.0
30379	Fish, Nesoi, With Bones, Frozen	20.1	8.2	69.2	-17.0	-4.8	-19.3	-6.0	13.4
30420	Fish Fillets, Frozen	12.4	-1.9	-13.1	160.9	-0.3	-2.1	126.6	5.2
30269	Fish, Nesoi, With Bones, Fresh Or Chilled	9.0	-0.8	-8.0	-4.7	0.6	6.7	18.9	16.1
30239	Tunas Nesoi, With Bones, Fresh Or Chilled	8.3	-1.1	-11.4	6.2	-0.2	-2.1	3.3	51.2
30791	Molluscs Etc Nesoi, Live, Fresh Or Chilled	8.2	-1.4	-14.4	-19.0	-8.1	-49.8	-24.3	10.3
30490	Fish Meat Nesoi, Exc Fish Steaks & Fillets, Froz	7.8	-3.6	-31.7	11.9	1.2	18.6	28.7	2.1
30729	Scallops Incl Queen, Frozen/Dried/Salted/In Brine	6.0	1.6	37.4	17.5	2.4	66.1	42.6	21.3
30614	Crabs, Including In Shell, Frozen	5.1	1.1	28.7	-34.6	4.9	2,416.8	-30.0	7.3
30721	Scallops Incl Queen Scallops, Live, Fresh, Chilled	5.0	-1.9	-27.1	-17.3	1.6	45.0	89.1	49.8
98	Special Classification Provisions, Nesoi	206.6	-0.8	-0.4	3.9	41.1	24.9	17.2	0.8
980110	Value Of Repair/Alter Articles Previous Imported	84.4	12.9	18.1	25.4	52.4	163.8	53.4	2.9
987000	Special Canadian Classifications, Nesoi	38.0	-12.4	-24.6	-1.3	-6.8	-15.2	-2.7	2.0
980320	Exports Of Military Equipment, Not Identified	30.1	21.0	229.5	17.2	15.3	103.8	-4.7	3.5
988000	Est. Low Value Shp; Canadian Low Value And Nik	23.4	-2.8	-10.7	7.2	-3.2	-12.1	22.1	0.1
980900	Exports Valued Not Over \$10,000, Not Identified	19.2	-19.9	-50.9	-49.2	-16.4	-46.0	-38.4	1.8
980240	Articles Donated For Relief Etc., Nesoi, Exports	8.5	-1.4	-13.7	25.0	-2.4	-21.8	79.7	2.0
980220	Medicinal & Pharmaceutical Exports, Donated	2.5	2.1	482.4	25.1	2.1	538.0	52.1	1.1
980230	Wearing Apparel, Donated For Relief Etc, Exports	0.4	0.2	79.3	-18.3	0.3	186.3	-3.6	0.6
980210	Commingled Food Exports, Donated, Relief/Charity	0.0	0.0	-85.7	-15.3	-0.1	-96.5	-16.0	0.0
980310	Exports Of Military Wearing Apparel Of All Types	0.0	-0.5	-100.0	40.8	-0.1	-100.0	36.3	0.0
38	Miscellaneous Chemical Products	181.1	-24.6	-11.9	-0.6	47.4	35.5	11.5	1.7
382200	Composite Diagnostic/Lab Reagents, Exc Pharmaceut	118.9	-12.8	-9.8	6.9	50.4	73.7	37.4	4.5
382490	Products And Residuals Of Chemical Industry, Nesoi	20.6	-9.3	-31.1	6.7	1.9	10.0	30.1	1.4
381800	Chem Elem Doped, Used In Electron, Discs Wafers Et	19.0	-4.9	-20.6	-26.0	14.1	287.7	11.5	3.6
381190	Additives For Mineral Oils, Nesoi	3.6	1.8	105.8	19.3	0.6	21.1	17.2	1.6
382319	Indust Monocarboxylic Fatty Acids, Nesoi Acid Oils	3.2	-1.5	-32.0	8.7	-7.2	-69.2	-51.7	17.9
382100	Prepared Culture Media For Devel Of Microorganisms	2.7	0.7	36.6	14.2	0.9	47.5	5.9	1.7
380991	Finishing Agts Etc Nesoi, In Textile Or Like Indust	2.3	1.4	158.3	-21.3	0.7	45.6	-5.3	2.3
380993	Finishing Agts,Dye Carriers/Prep Nesoi Leather Ind	1.7	1.0	149.3	-2.0	1.3	320.7	-26.1	12.6
380190	Preparations Based On Graphite, Nesoi	1.7	0.5	42.2	-30.7	0.7	79.0	-34.0	4.6
380110	Artificial Graphite	1.3	-0.6	-32.0	-8.7	1.1	439.0	24.8	2.2
41	Raw Hides And Skins (No Furskins) And Leather	137.8	33.4	32.0	11.3	22.6	19.7	36.4	5.1
410121	Bovine Hides & Skins, Whole, Nesoi, Fr Or Wet Salt	96.7	23.2	31.6	15.6	36.6	60.9	61.7	6.5
410110	Bov Hides Whole Nov 8kg Drd/10kg Dry-Salt/14 Kg Fr	17.3	8.7	100.6	-25.5	-2.8	-13.9	30.7	42.0
410431	Bovine & Equine Leather Nesoi, Par-Dr Full Grn Etc	7.0	-1.1	-14.0	-13.9	-10.1	-59.1	-29.0	3.9
410429	Bovine & Equine Leather, Tanned Etc, Nesoi	3.9	0.9	27.7	10.3	0.7	22.6	42.9	1.1
410390	Raw Hides And Skins Nesoi, Fresh Or Salted Etc.	2.3	0.1	4.0	2.0	1.6	213.2	-27.7	5.8
410410	Whole Bovine Skin Leather, Surface Nov 28 Sq Ft.	1.6	-0.4	-20.9	-25.7	0.4	39.0	-1.1	9.5
410790	Leather Of Animals Nesoi, Without Hair On	1.5	0.6	71.3	46.7	0.3	29.2	77.9	2.2
410422	Bovine Leather Without Hair On Otherwise Pretanned	1.5	0.4	33.0	36.8	0.8	120.1	45.5	3.3
410900	Patent & Patent Laminated Leather; Metallzd Leathr	1.0	1.0	39,320.5	-10.1	1.0	NA	115.9	4.0
410619	Goat Or Kidskin Without Hair On Tanned Or Retanned	1.0	0.3	35.1	7.7	0.5	112.8	41.8	65.9

■ 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
Dollar Value of Shipments in Millions

	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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	5,462.1	-1,555.6	-22.2	-17.4	1,548.3	39.6	13.0	4.5
Canada	625.4	-363.1	-36.7	-21.2	-108.3	-14.8	-0.4	3.1
Japan	585.4	-55.5	-8.7	-16.6	155.2	36.1	3.2	7.0
Germany	537.4	-12.1	-2.2	6.6	295.5	122.1	41.4	12.9
United Kingdom	536.8	11.7	2.2	-16.9	178.4	49.8	5.5	10.0
Ireland	384.1	9.3	2.5	-5.2	294.4	328.2	52.2	22.9
Philippines	334.0	81.2	32.1	-9.5	132.6	65.8	26.5	6.8
China (Taiwan)	216.3	-242.9	-52.9	-24.7	-36.4	-14.4	16.8	4.0
Netherlands	206.8	-288.0	-58.2	-15.5	24.4	13.4	26.2	8.3
China (Mainland)	183.2	-97.3	-34.7	27.4	51.5	39.1	95.7	5.3
Malaysia	176.5	-63.1	-26.3	-27.1	85.5	94.0	9.0	3.7
84 Industrial Machinery, Including Computers	3,554.8	-976.3	-21.5	-8.7	-1,188.0	-25.0	6.6	2.5
Canada	777.5	-257.1	-24.8	-9.9	-326.3	-29.6	1.5	2.4
Japan	438.2	-158.9	-26.6	-15.2	-164.2	-27.3	14.4	4.5
United Kingdom	389.4	-142.0	-26.7	-6.6	-103.5	-21.0	3.6	3.8
Germany	235.2	-23.4	-9.0	-1.0	-147.9	-38.6	17.9	3.0
France	204.2	-25.8	-11.2	-5.9	23.5	13.0	6.9	3.3
Singapore	140.1	19.9	16.5	-13.8	-1.0	-0.7	7.7	3.0
Ireland	138.8	-20.6	-12.9	-22.9	-26.4	-16.0	-7.9	7.2
Netherlands	103.8	-7.4	-6.6	-15.4	-67.3	-39.3	2.6	1.9
Mexico	93.4	-22.9	-19.7	-6.2	-9.5	-9.2	30.3	0.6
Korea, Republic Of	91.0	-71.2	-43.9	-36.1	21.9	31.6	55.5	2.4
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	3,293.4	-322.5	-8.9	-1.8	767.1	30.4	23.5	7.4
Japan	571.3	34.5	6.4	-1.1	125.4	28.1	23.5	9.4
United Kingdom	319.4	17.8	5.9	-7.8	67.8	26.9	24.7	10.7
Netherlands	312.4	-24.8	-7.4	-5.3	78.6	33.6	8.6	14.5
Germany	309.0	47.0	18.0	8.6	75.1	32.1	30.6	8.5
Canada	212.5	-1.7	-0.8	-6.8	33.1	18.5	15.4	3.5
Belgium	149.7	121.0	421.7	3.5	115.2	334.3	16.3	18.3
Singapore	133.1	-78.5	-37.1	-25.2	27.2	25.7	13.9	13.0
France	122.9	-19.3	-13.6	-3.3	21.9	21.7	13.8	5.9
China (Taiwan)	122.6	-257.6	-67.8	-41.8	8.2	7.1	23.0	9.5
Korea, Republic Of	91.0	-50.1	-35.5	-16.0	50.1	122.2	61.5	7.3
39 Plastics And Articles Thereof	681.1	17.7	2.7	-4.5	126.8	22.9	18.6	2.5
Canada	146.1	-3.6	-2.4	-3.9	11.0	8.1	14.5	2.1
Mexico	102.6	-9.5	-8.5	-8.0	22.8	28.6	33.2	1.5
United Kingdom	74.7	10.6	16.5	1.5	17.4	30.3	2.1	9.3
Belgium	50.5	17.8	54.5	0.7	14.7	41.2	21.4	4.3
Japan	41.7	-8.4	-16.7	-8.4	-3.3	-7.3	15.6	3.4
Netherlands	31.3	-19.2	-38.0	-7.8	-22.3	-41.6	-11.8	4.6
Germany	30.3	5.8	23.7	-3.8	10.2	50.5	-6.0	5.0
Hong Kong	29.9	5.8	23.9	-14.8	13.7	85.0	13.7	4.2
Singapore	28.8	3.1	12.0	-16.8	16.4	133.0	13.7	5.3
Brazil	23.0	1.4	6.3	-6.4	9.3	68.2	3.5	3.4

■ 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
Dollar Value of Shipments in Millions

	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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
30 Pharmaceutical Products	495.7	50.8	11.4	18.8	166.0	50.4	65.6	4.0
United Kingdom	207.3	62.2	42.9	89.3	97.1	88.1	312.0	8.5
Japan	53.0	11.9	28.8	19.1	28.8	118.9	48.8	6.2
Ireland	39.5	24.1	156.7	38.1	39.3	21,540.2	232.1	8.9
Germany	38.3	-23.7	-38.2	12.2	10.3	36.9	9.0	5.6
Canada	21.2	2.6	13.8	0.4	4.9	30.0	46.4	1.1
Brazil	19.3	-4.5	-18.8	-19.1	9.7	101.6	5.3	9.0
France	18.4	1.5	8.7	25.2	1.6	9.3	99.2	2.8
Argentina	14.3	1.6	12.3	-9.1	14.2	9,083.1	-1.6	14.9
Israel	14.1	0.3	2.5	-9.4	5.4	61.9	7.1	26.0
Australia	8.3	0.6	7.1	-4.2	1.3	18.0	28.9	2.9
48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	329.5	-45.2	-12.1	-6.1	29.9	10.0	4.3	3.0
Canada	152.5	-18.6	-10.9	0.4	4.6	3.1	21.9	4.0
Netherlands	43.7	-25.0	-36.4	-0.9	8.6	24.4	-15.1	19.2
Hong Kong	19.1	3.7	23.8	-9.5	9.1	90.9	-35.7	8.5
Japan	14.7	1.6	12.5	-14.7	5.0	51.3	2.9	2.1
China (Mainland)	14.3	2.0	16.0	-17.6	5.4	60.4	-2.1	4.3
Mexico	10.2	-9.0	-46.9	-6.1	-8.1	-44.2	24.7	0.4
Germany	10.1	2.3	29.3	-15.5	3.3	48.7	-14.3	5.4
United Kingdom	9.2	-3.2	-25.6	-6.1	-8.4	-47.6	-13.4	3.1
Singapore	4.7	1.3	38.2	-26.0	1.3	36.2	-24.3	6.7
Australia	4.0	-0.3	-6.9	-8.3	-2.4	-37.6	-18.3	2.3
82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	310.6	38.7	14.2	-4.6	62.0	24.9	6.8	10.8
United Kingdom	99.3	15.0	17.8	7.7	35.6	55.8	1.6	37.8
Canada	81.7	12.2	17.5	-9.0	3.3	4.2	0.1	8.6
Belgium	26.0	14.0	117.1	23.0	16.7	178.2	56.9	39.6
Japan	14.9	2.2	17.8	-1.6	7.1	91.6	9.5	13.4
Australia	14.6	6.0	69.6	-0.4	6.7	84.3	7.9	20.1
Mexico	10.8	-1.8	-14.3	-19.4	4.3	66.7	21.1	3.3
Brazil	9.4	-7.8	-45.3	-29.2	6.9	279.4	27.2	20.4
Malaysia	9.0	6.2	225.6	54.1	6.1	217.5	33.6	46.4
China (Mainland)	4.1	1.9	90.7	45.1	3.3	441.8	146.6	6.8
Singapore	3.7	-1.1	-22.7	-26.0	1.0	36.4	10.7	7.2
29 Organic Chemicals	279.7	62.4	28.7	-8.1	168.2	150.9	14.8	1.4
France	235.1	52.1	28.5	16.9	175.5	294.9	69.8	17.3
Japan	9.3	2.9	44.7	-13.2	6.7	254.3	9.9	0.7
China (Taiwan)	5.6	4.0	244.3	-40.2	4.7	484.1	-16.2	0.9
Canada	5.3	-1.1	-17.2	1.1	0.6	13.4	10.2	0.2
United Kingdom	4.9	2.9	150.3	24.1	3.0	159.4	29.7	0.5
Belgium	4.5	3.5	318.4	-1.1	3.7	415.4	-0.8	0.4
Netherlands	3.3	0.0	-0.7	-10.1	2.5	289.3	-9.8	0.2
Germany	3.1	2.4	353.4	20.0	2.5	473.9	50.5	0.6
Mexico	1.2	-1.0	-43.9	-8.8	-1.1	-47.0	31.0	0.1
Sweden	1.2	0.8	163.8	1.7	0.5	64.5	14.3	3.0

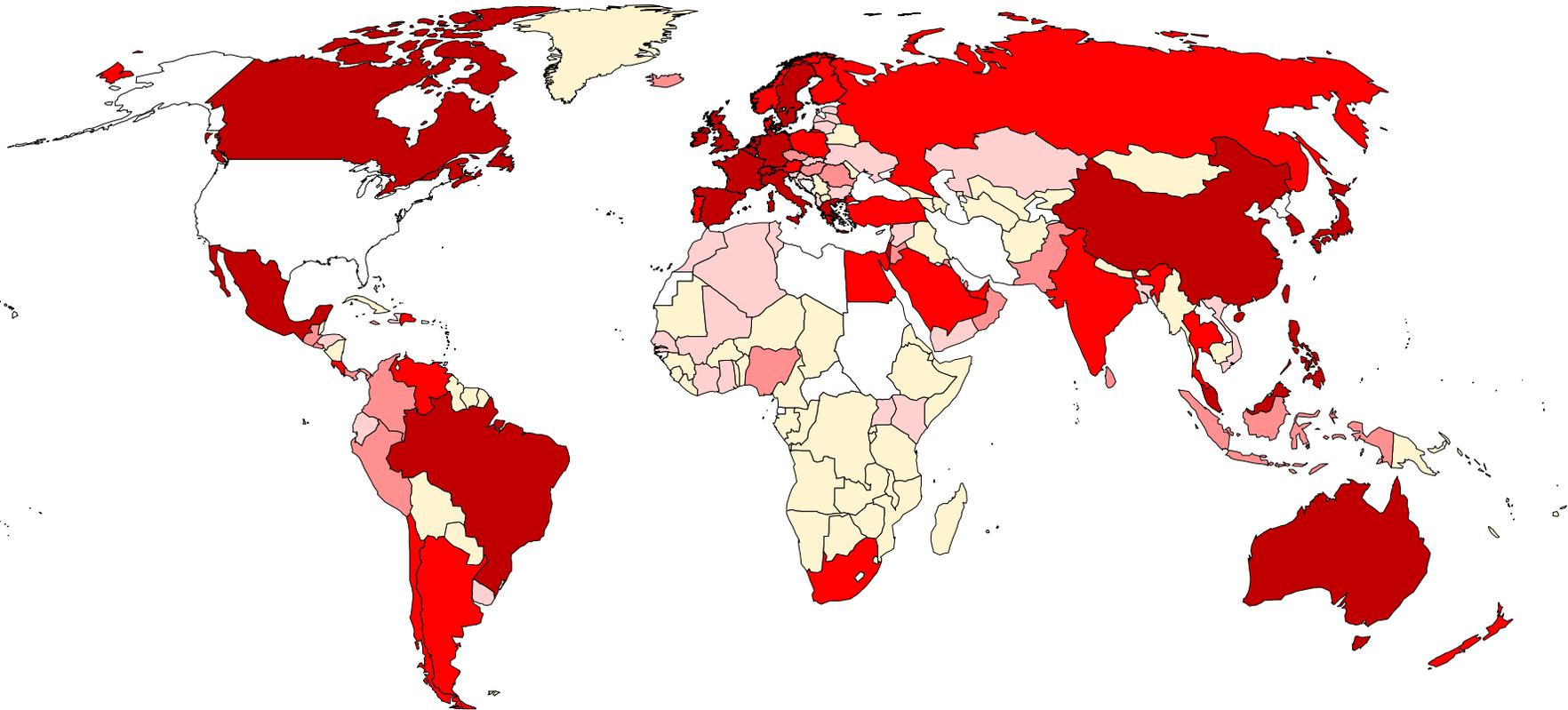
■ MA export growth exceeds US growth, ■ MA exports as a % of US exports exceeds MA average % of US exports

Table 4 (Continued)
Massachusetts Exports by 2-Digit HS by Leading Destination Countries
Top 12 HS Chapters by Top 10 Destinations
Dollar Value of Shipments in Millions

	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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
3 Fish, Crustaceans & Aquatic Invertebrates	218.9	-3.9	-1.8	7.2	15.4	7.6	42.6	7.7
Canada	50.7	-10.5	-17.2	-3.5	1.2	2.4	30.3	9.2
Japan	32.0	-4.6	-12.6	-3.3	-10.2	-24.2	21.2	2.9
Italy	26.0	-0.5	-2.1	-12.8	1.1	4.6	12.4	57.6
France	25.6	-0.9	-3.5	-7.9	-11.6	-31.1	0.8	32.8
Korea, Republic Of	24.4	7.7	46.0	48.8	18.6	320.5	240.7	7.9
Spain	19.8	1.4	7.7	10.4	9.0	83.5	41.7	28.4
Germany	6.9	-1.5	-17.5	188.2	-0.9	-11.1	213.7	5.3
Belgium	5.8	-0.5	-7.3	-17.2	1.6	37.9	47.4	42.9
United Kingdom	4.1	-1.2	-22.4	73.6	-1.9	-31.6	101.8	10.3
Egypt	3.0	3.0	29,328.6	8,402.4	3.0	NA	9,044.8	71.2
98 Special Classification Provisions, Nesoi	206.6	-0.8	-0.4	3.9	41.1	24.9	17.2	0.8
Canada	68.1	-13.9	-17.0	43.4	-6.4	-8.6	54.4	1.2
Greece	26.0	25.5	5,264.0	94.2	25.7	9,209.8	104.5	33.6
Singapore	14.0	0.1	0.9	-0.7	10.8	332.9	9.6	2.5
Japan	12.2	-1.2	-9.2	5.5	3.8	44.6	18.9	0.9
Germany	11.7	-2.3	-16.2	-0.8	5.9	101.3	14.6	1.1
Netherlands	11.0	-0.6	-4.9	-6.0	7.0	176.2	10.1	2.9
United Kingdom	7.8	-2.1	-20.9	1.1	-2.9	-27.3	7.4	0.5
Italy	7.3	4.0	124.0	0.6	6.0	479.4	12.6	2.4
Poland	6.4	-3.4	-34.3	-14.4	-4.6	-41.9	-42.1	15.9
China (Taiwan)	5.8	-2.6	-31.4	-13.9	1.8	46.8	15.7	1.5
38 Miscellaneous Chemical Products	181.1	-24.6	-11.9	-0.6	47.4	35.5	11.5	1.7
Japan	26.2	-16.0	-37.9	1.5	1.3	5.3	20.6	2.5
Canada	25.8	1.0	3.9	-1.7	-4.7	-15.3	2.9	1.3
France	23.1	6.7	40.7	-5.2	8.0	53.4	-15.4	6.2
Germany	19.5	-14.9	-43.3	-13.5	0.1	0.4	-12.8	3.3
United Kingdom	12.9	-4.1	-24.1	17.2	5.6	76.9	92.0	1.8
Italy	7.6	-6.4	-45.9	-16.5	5.8	319.5	-18.6	5.0
Brazil	6.3	3.0	91.0	9.3	4.6	269.8	-0.4	1.4
Netherlands	5.7	1.3	29.2	-5.1	4.4	348.1	24.0	1.2
Mexico	5.6	0.8	15.6	-9.1	0.2	4.1	1.7	0.8
Korea, Republic Of	5.3	1.7	47.6	6.6	3.7	222.0	51.9	1.5
41 Raw Hides And Skins (No Furskins) And Leather	137.8	33.4	32.0	11.3	22.6	19.7	36.4	5.1
Italy	32.6	2.5	8.5	21.6	-5.1	-13.4	31.3	19.0
Korea, Republic Of	31.0	5.7	22.7	5.6	16.4	113.0	76.6	4.9
China (Mainland)	17.4	11.0	173.4	60.5	14.7	555.4	173.2	4.0
Hong Kong	14.7	3.8	35.0	31.0	1.8	14.2	49.1	5.7
China (Taiwan)	7.2	7.0	4,278.8	1.3	6.7	1,476.4	17.3	2.7
Mexico	6.2	1.2	25.1	-14.0	-4.0	-39.5	-4.4	1.7
Brazil	5.8	3.3	134.5	22.6	1.7	40.9	32.9	80.5
Canada	4.6	-2.6	-36.4	-28.7	-1.5	-24.7	-24.6	4.8
Japan	3.6	1.1	42.4	2.7	2.4	219.4	29.4	2.4
Thailand	2.1	1.8	704.5	31.0	0.6	37.7	53.9	2.8

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

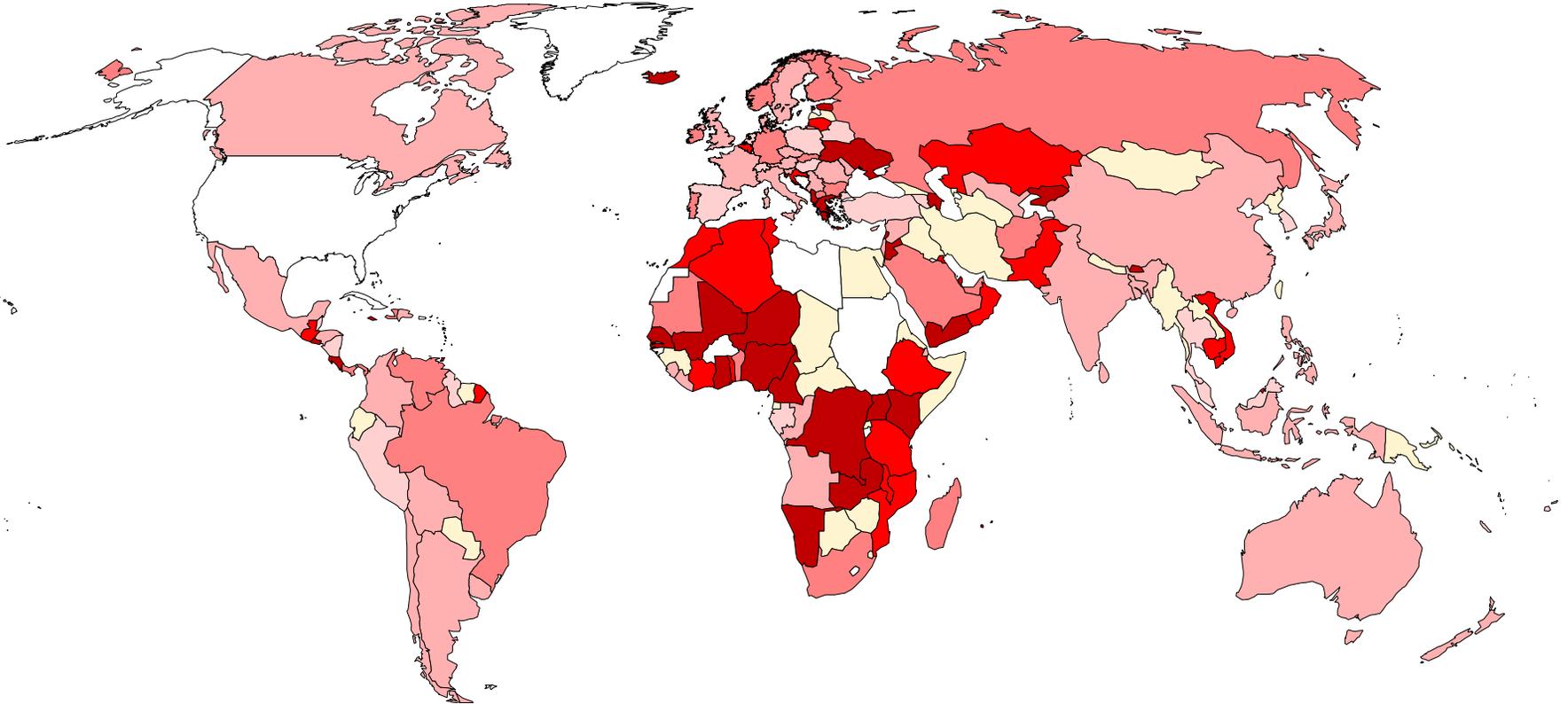
Massachusetts Exports: Annual 2001



Value of Exports from Massachusetts

■ \$100 million or Greater	(24)
■ \$25 million to \$99 million	(20)
■ \$2 million to \$24.9 million	(20)
■ \$1 million to \$4.9 million	(37)
■ Less than \$1 million	(89)

Massachusetts Exports: Percent Change 2000-2001



Percent Change, 2000-01

75% or Greater	(32)
25% to 74%	(24)
0% to 24%	(30)
-25% to -1%	(41)
-50% to -24%	(22)
Greater than -50%	(42)

IV. MAJOR DESTINATIONS FOR MASSACHUSETTS EXPORTS

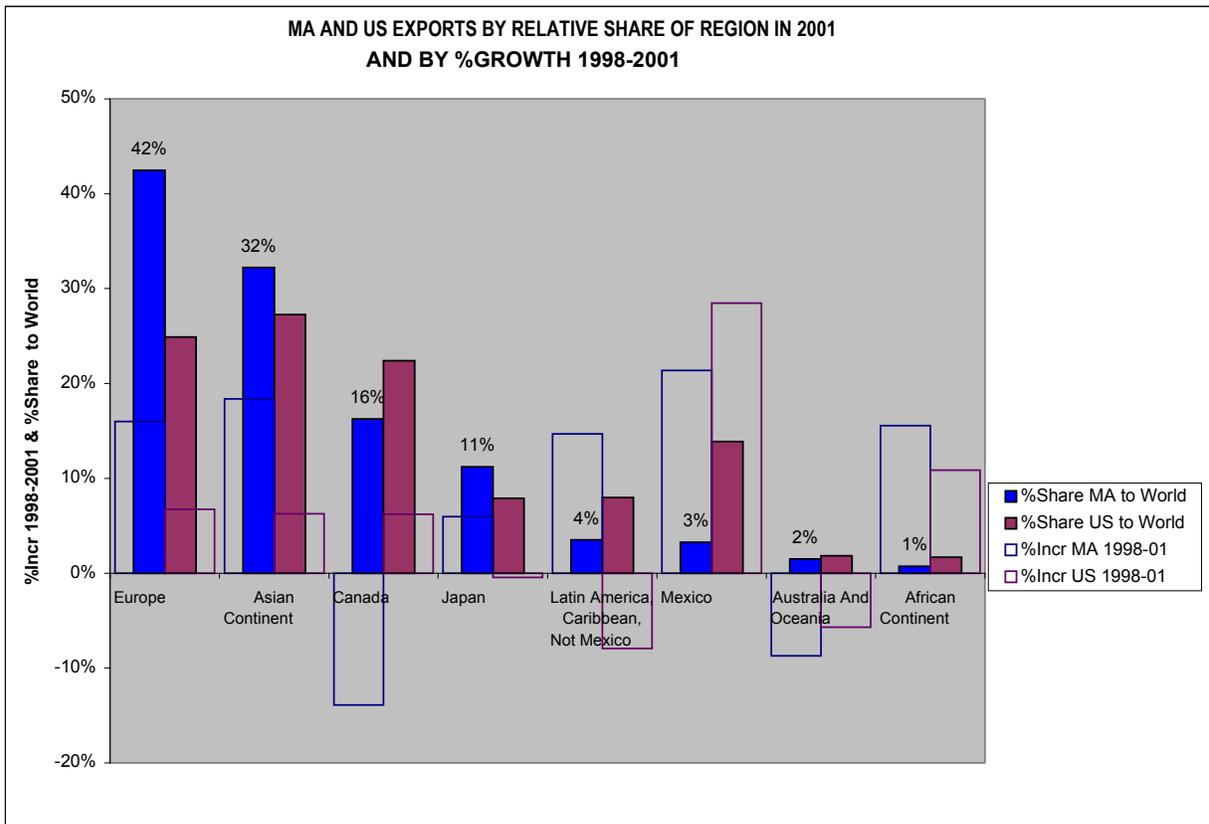
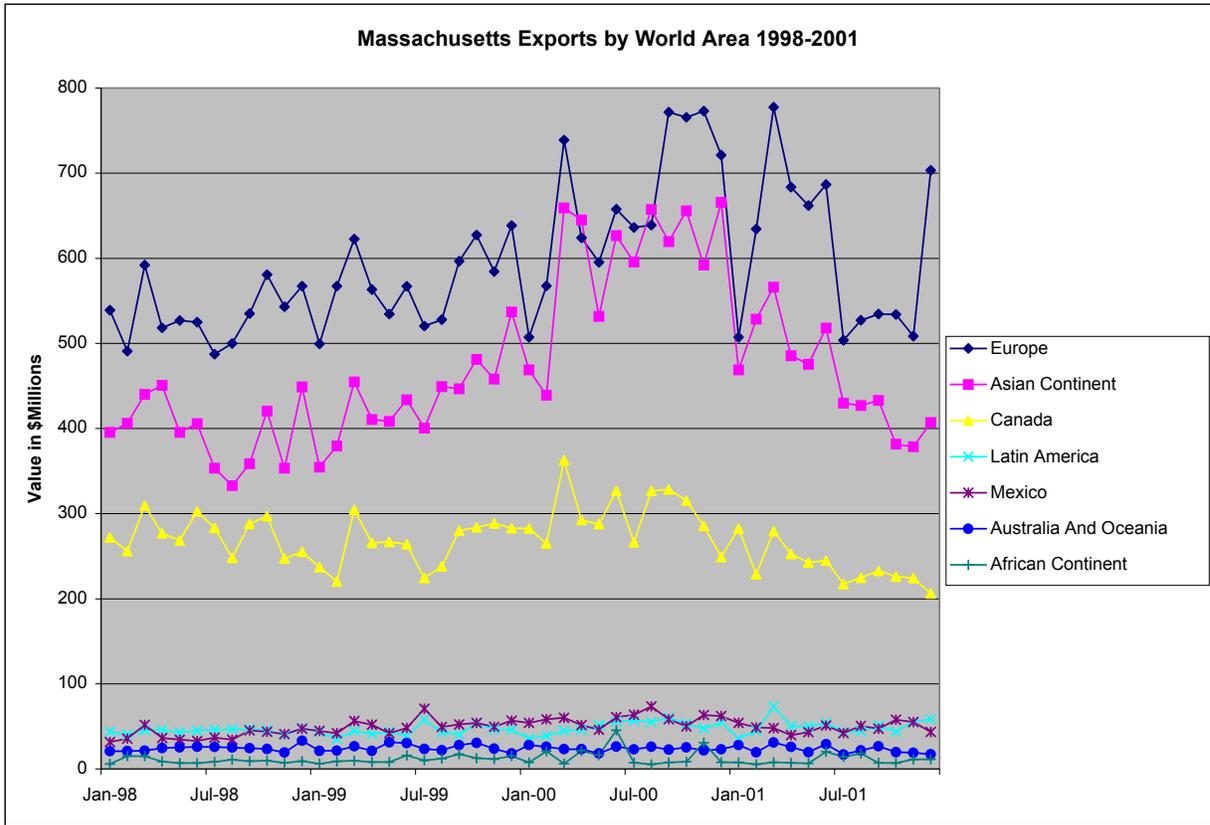


Table 5
Massachusetts Exports by World Region of Destination
Dollar Value of Shipments in Millions

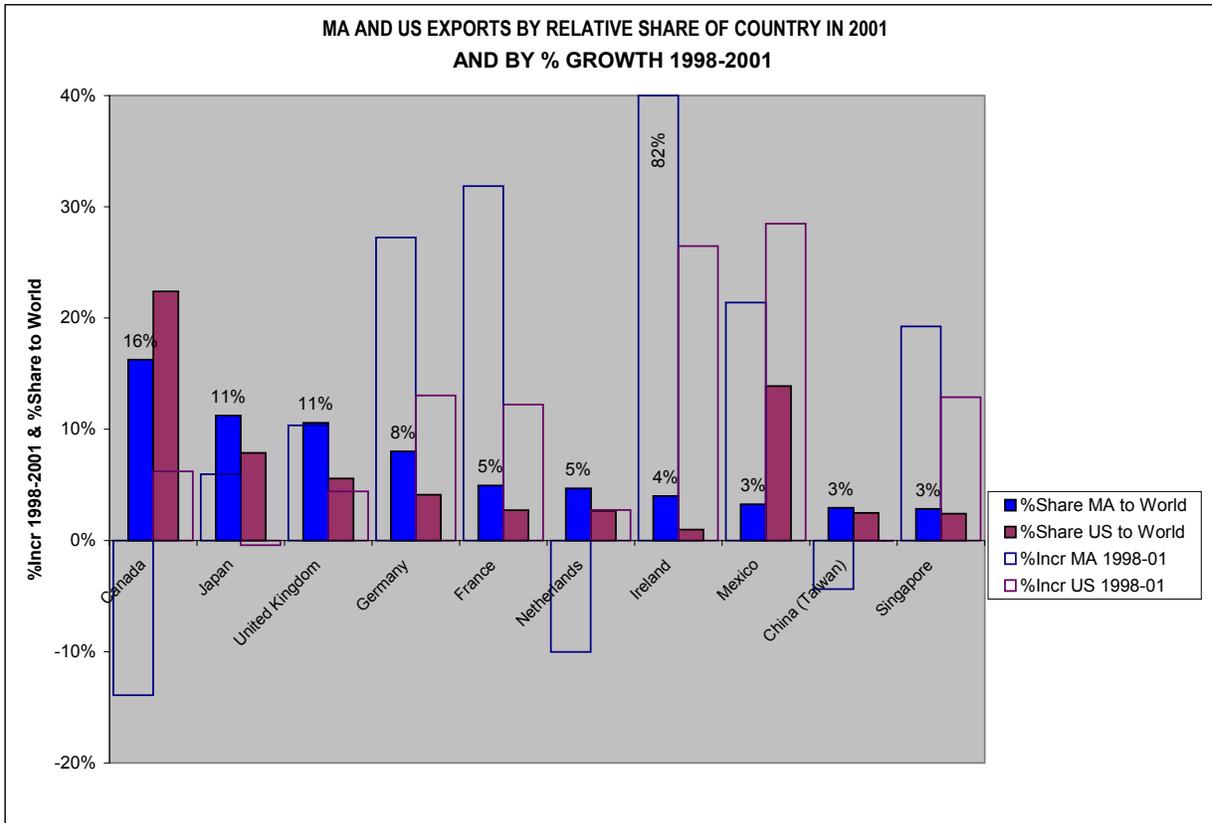
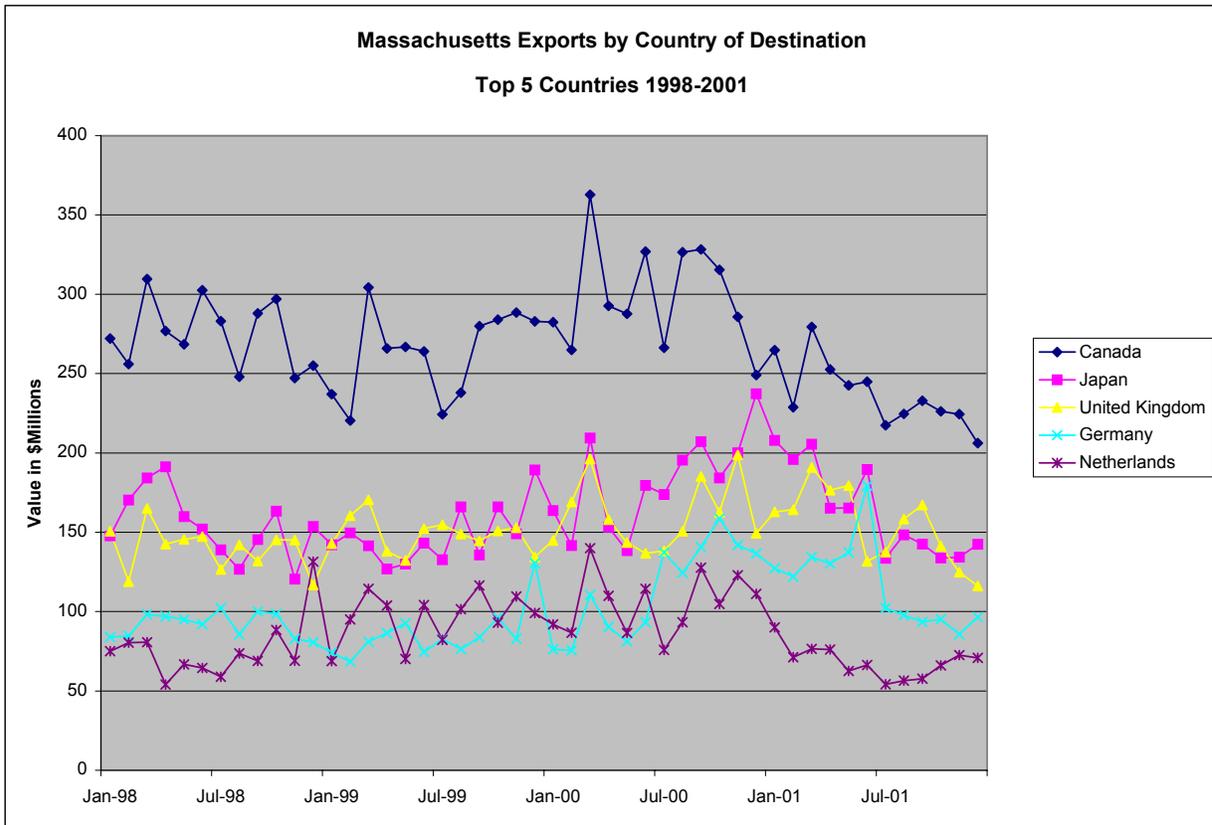
	MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
TOTAL ALL COUNTRIES	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
North America	3,415.5	-874.8	-20.4	-8.0	-359.2	-9.5	13.8	1.3
Canada	2,844.5	-744.2	-20.7	-7.2	-459.1	-13.9	6.2	1.7
Mexico	570.9	-130.5	-18.6	-9.1	100.6	21.4	28.5	0.6
Latin America, Caribbean, Not Mexico	614.6	15.6	2.6	-1.4	78.7	14.7	-7.9	1.1
South America	446.2	-36.4	-7.5	-0.7	45.7	11.4	-13.5	1.2
Central America	96.8	43.1	80.3	-3.3	32.3	50.0	2.4	0.9
Caribbean	71.6	8.8	14.1	-2.0	0.8	1.1	4.4	0.6
Europe	7,430.6	-567.4	-7.1	-2.9	1,025.0	16.0	6.7	4.1
Western Europe	7,311.0	-538.9	-6.9	-3.4	1,015.3	16.1	7.4	4.2
European Union	7,106.4	-475.9	-6.3	-3.4	1,089.1	18.1	6.5	4.5
Eastern Europe	119.6	-28.6	-19.3	11.6	9.8	8.9	-8.3	1.7
Former Soviet Republics	46.9	4.5	10.6	13.8	3.9	9.1	-17.3	1.1
Asian Continent	5,636.1	-1,520.8	-21.2	-9.2	875.0	18.4	6.3	2.8
Japan	1,964.1	-219.7	-10.1	-11.7	110.5	6.0	-0.4	3.4
Asia-Nics	1,922.1	-1,064.1	-35.6	-14.9	281.6	17.2	13.9	2.7
Asean	1,310.9	-373.1	-22.2	-7.7	299.4	29.6	11.1	3.0
Asia Near East	395.5	14.5	3.8	1.5	102.4	34.9	-18.3	2.0
Asia-South	106.5	-10.6	-9.1	4.5	20.3	23.6	0.3	2.2
African Continent	129.4	-54.3	-29.6	12.9	17.4	15.6	10.9	1.0
Sub-Saharan Africa	74.7	12.6	20.3	17.5	5.8	8.3	4.0	1.1
Australia And Oceania	263.9	-22.6	-7.9	-9.4	-25.2	-8.7	-5.7	2.0

Declines in Massachusetts exports in 2001 occurred in almost every major world region. The largest decrease (21.2%) came in Asia. The US recession and slowing demand for finished electronics products had a chilling impact on Asia's traditional exporting powerhouses. These same countries are also a market for Massachusetts-made components, equipment and instrumentation which supports Asia's manufacturers. North America and Europe had less severe but still significant drops in exports.

While the decline in Asian and European markets was a blow to Massachusetts exporters in 2001, both regions have seen a healthy growth in exports from the state over the past four years. Exports to Europe increased 16% since 1998 while in Asia exports have gone up 18.4% in the same period. In both regions Massachusetts did better than the nation overall. The contrast with the Commonwealth's performance in North America is notable. Massachusetts manufacturers lag the rest of the nation in exports over the past four years to our two closest neighbors. In the case of Canada, Commonwealth exports have declined 13.9% since 1998 while the rest of the nation has averaged a positive growth of 6.2%. In Mexico, Massachusetts exports gained a respectable 21.4% but still trailed the US average of 28.5%.

The only world region where Massachusetts exporters saw positive growth in 2001 (albeit small at 2.6%) was in Latin America and the Caribbean, excluding Mexico. Most of the growth came in Costa Rica from sales of metal oxide semiconductors and mono digital integrated circuits.

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



Massachusetts Exports by Country of Destination and Leading HS Commodities

North America

Despite an overall decline in the volume of trade from Massachusetts to Canada of 13.9% over the past four years, *Canada* remains the state's largest single export market. Industrial machinery, excluding computers, and electric machinery are the two dominant export commodities from the state. Both also registered the biggest drop in export volumes last year, falling 24.8% and 36.7%, respectively. Eight out of the state's top 10 exported commodities saw some fall in exports to Canada in 2001. At the six-digit HS level, turbojets marked the biggest single drop in exports, accounting for 28.9% of the state's total export volume loss. The biggest export gain was made by razors, shooting up 93% from a year earlier.

Mexico is atypical among the state's major export markets. Plastics assume a higher position in the state's export mix in Mexico following only behind electric machinery. At the six-digit HS level, the Commonwealth's top selling product in Mexico is polycarbonates. Also notable in Mexico is the relatively low level of penetration of our traditionally strong export commodity groups. This is shown in the last column of Table 7. Electric machinery; industrial machinery, including computers; and optic/photo/surgical and medical instruments all fall well below the state's usual export market share vis-à-vis other US manufacturers. However, it should be noted that state exports to Mexico are significantly under-reported for non-border states. Texas is credited with 40% of all US exports to Mexico due to consolidation of shipments on the border.³

Europe

Among the Commonwealth's top regional markets, Europe's decline of 7.1% in 2001 was more modest than that of either North America (20.4%) or Asia (21.2%). The loss leaders in Europe were the *U.K.*, *France*, and *the Netherlands*. In all three countries industrial machinery, including computers, and electric machinery accounted for the lion's share of the export losses. However, despite the decline in these markets, there were also bright spots. In France, organic chemicals (specifically hormones and derivatives *nesoi*) continued to advance at a rapid pace climbing 28.5% in 2001. Since 1998 Massachusetts exports of hormones and derivatives have increased an astounding 294.5% to become the state's number one export commodity to France.

In *Germany*, a traditionally strong market for Massachusetts exports, a healthy advance for optic/photo/medical or surgical instruments helped offset losses in industrial machinery, electric machinery and pharmaceuticals to finish the year with a small positive growth rate of 2.5%.

The best performing European markets for Massachusetts exports in 2001 were the smaller, second tier markets. *Greece* recorded both the largest percentage (471.9%) and volume (\$156.5 million) export increases last year largely on the sale of radar apparatus. Sales from this six-digit HS product category alone accounted for 79.5% of the increase in exports to Greece. The last column on Table 6.1 shows that Greece was our leading "market of specialization" in 2001. Massachusetts accounted for 14.6% of all of the manufactured exports shipped from the U.S. to Greece.

Belgium also notched an impressive export gain in 2001 advancing 37.2%. The jump in Belgium was driven by a large increase in sales of medical needles *nesoi*, and catheters from \$4 million in 2000 to \$117 million in 2001.

³ See under-reporting of state exports to Mexico in the appendix for additional details.

Finally, continuing its steady climb as an export market of importance to Massachusetts was *Ireland*. In comparison to its four year growth rate of 81.6%, Ireland's advance was modest last year at 5.4%. Exports to Ireland are concentrated heavily (54.9%) in electric machinery. At the six-digit HS level within electric machinery, the largest export item to Ireland is parts of electric apparatus for line telephony or telegraphy. Much of the export volume to Ireland is the result of internal transfers of product from Massachusetts companies to their offshore facilities in Ireland.

Asia

Massachusetts did slightly better than competing U.S. exporters in sales to Japan and the Philippines in 2001, but fared worse to all other major Asian markets. As in most other markets in 2001, industrial machinery, including computers, and electric machinery led the export losses for the Commonwealth in *Japan*. Also, as in markets like Germany and Belgium, exports of optic/photo/medical and surgical instruments bucked the declining trend among high tech products and managed to advance by 6.4%. Gains in the export of pharmaceuticals and toys, games and sports equipment also help soften the fall in export sales to Japan.

Export declines were steepest in 2001 to *Taiwan, Singapore, Korea and Malaysia*. The US recession in 2001 hit Asia particularly hard and loss of finished product sales to the US were reflected in a drop in demand for Massachusetts inputs to Asia's electronic goods manufacturers. For example, in Taiwan, products related to the manufacture of semiconductors (instruments to check semiconductor wafers and particle accelerators, ion implanters for semiconductors) accounted for the bulk of the export decline.

In contrast to its regional neighbors, the *Philippines* grew as an export market for electric machinery from Massachusetts advancing 32.1% while the US fell 9.5% in the same category. Metal oxide semiconductors/ mono digital integrated circuits accounted for all of that growth.

Latin America

Brazil was the only Latin American country to make it into the ranks of the Commonwealth's top 20 export markets. The export mix to *Brazil* is typical of the state's other leading markets: electrical machinery is the top export commodity rising 8% to \$99.6 million in 2001 followed by optic/photo/medical or surgical instruments which also advanced in 2001 at 14.4% to \$34.8 million. The third among the big three Massachusetts export commodities -- industrial machinery, including computers -- fell last year by 24.2% for an export volume of \$63.2 million.

Costa Rica and *Jamaica* are notable in the region for the big jumps in exports from Massachusetts they experienced in 2001. In both countries the gains were driven by exports in just a few product areas. In Costa Rica, exports of more than \$32 million of metal oxide semiconductors and mono digital integrated circuits accounted for the majority of the increase in that country. In *Jamaica*, the gain came almost entirely from export of antennas, antenna reflectors and parts and related transmission and reception apparatus.

Africa

Africa continued to be largely absent as a significant market for Massachusetts exporters. There was a large percentage increase of 378.9% in exports to Nigeria in 2001 -- albeit on a very small volume base. Most of this increase came from the export of digital adp machines and units entered as systems.

Table 6.1
Massachusetts Exports by Country of Destination
Top 40 Countries 2001
Dollar Value of Shipments in Millions

	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
TOTAL ALL COUNTRIES	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
1 Canada	2,844.5	-744.2	-20.7	-7.2	-459.1	-13.9	6.2	1.7
2 Japan	1,964.1	-219.7	-10.1	-11.7	110.5	6.0	-0.4	3.4
3 United Kingdom	1,851.0	-81.9	-4.2	-1.9	173.5	10.3	4.4	4.5
4 Germany	1,400.7	34.5	2.5	3.0	299.8	27.2	13.0	4.7
5 France	864.8	-159.4	-15.6	-1.8	208.9	31.8	12.2	4.3
6 Netherlands	820.2	-444.7	-35.2	-11.1	-91.4	-10.0	2.7	4.2
7 Ireland	699.5	35.6	5.4	-7.5	314.3	81.6	26.5	9.8
8 Mexico	570.9	-130.5	-18.6	-9.1	100.6	21.4	28.5	0.6
9 China (Taiwan)	512.6	-540.6	-51.3	-25.5	-23.4	-4.4	0.0	2.8
10 Singapore	494.8	-207.8	-29.6	-0.7	79.9	19.3	12.9	2.8
11 Korea, Republic Of	491.0	-255.8	-34.3	-20.4	187.6	61.9	34.2	2.2
12 Philippines	426.2	-7.8	-1.8	-12.8	131.3	44.5	13.8	5.6
13 China (Mainland)	425.3	-76.7	-15.3	18.3	139.2	48.7	34.9	2.2
14 Hong Kong	423.7	-59.9	-12.4	-3.8	37.5	9.7	8.9	3.0
15 Belgium	415.5	112.6	37.2	-3.1	118.2	39.8	-2.8	3.1
16 Italy	380.7	-35.8	-8.6	-9.9	42.9	12.7	9.8	3.8
17 Brazil	293.5	0.2	0.1	3.7	95.8	48.4	5.1	1.8
18 Malaysia	285.4	-117.3	-29.1	-14.7	112.5	65.1	4.8	3.0
19 Australia	237.6	-18.9	-7.4	-12.2	-21.2	-8.2	-8.3	2.2
20 Israel	232.9	-31.7	-12.0	-3.5	63.6	37.6	7.2	3.1
21 Greece	189.7	156.5	471.9	6.4	160.9	559.1	-4.4	14.6
22 Sweden	170.9	-21.9	-11.4	-22.1	-42.0	-19.7	-7.1	4.8
23 Spain	123.4	-59.8	-32.6	-8.1	-23.1	-15.8	6.3	2.1
24 Switzerland	123.4	-43.8	-26.2	-1.1	-32.5	-20.8	35.6	1.3
25 India	85.9	-10.7	-11.1	2.8	13.9	19.3	6.2	2.3
26 Thailand	83.8	-35.0	-29.5	-9.7	7.1	9.3	14.6	1.4
27 Costa Rica	74.5	36.8	97.9	2.1	56.4	310.9	8.6	3.0
28 Austria	66.8	-11.1	-14.3	2.8	-2.1	-3.1	4.8	2.5
29 Argentina	57.1	-17.6	-23.5	-16.4	-2.5	-4.1	-33.3	1.5
30 Finland	55.4	0.2	0.4	-1.1	-65.7	-54.3	-18.9	3.6
31 Republic Of South Africa	47.1	3.6	8.3	-4.0	-6.7	-12.4	-18.3	1.6
32 United Arab Emirates	45.8	4.4	10.7	15.2	20.2	79.1	11.4	1.7
33 Egypt	45.2	-70.0	-60.8	13.5	9.4	26.1	23.5	1.2
34 Norway	38.5	1.2	3.2	19.1	-2.0	-5.0	7.6	2.1
35 Denmark	37.2	-2.1	-5.3	6.5	-3.0	-7.4	-14.1	2.3
36 Saudi Arabia	36.4	6.2	20.5	-4.2	-19.4	-34.7	-43.3	0.6
37 Russia	33.4	0.8	2.4	17.5	3.6	11.9	-24.0	1.2
38 Poland	32.1	-26.7	-45.4	4.1	0.9	3.0	-10.6	4.1
39 Chile	30.6	-5.8	-16.0	-9.4	-10.6	-25.7	-21.4	1.0
40 Venezuela	29.0	2.0	7.5	2.4	-8.0	-21.7	-12.8	0.5

■ 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 2000-2001 and 1998-2001

	MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
TOP 10 GROWTH COUNTRIES 2000-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
1 Greece	189.7	156.5	471.9	6.4	160.9	559.1	-4.4	14.6
2 Belgium	415.5	112.6	37.2	-3.1	118.2	39.8	-2.8	3.1
3 Costa Rica	74.5	36.8	97.9	2.1	56.4	310.9	8.6	3.0
4 Ireland	699.5	35.6	5.4	-7.5	314.3	81.6	26.5	9.8
5 Germany	1,400.7	34.5	2.5	3.0	299.8	27.2	13.0	4.7
6 Qatar	22.3	13.1	142.3	74.8	18.2	448.3	-5.2	6.6
7 Lebanon	18.1	7.9	77.1	18.1	6.3	52.9	-18.7	4.3
8 Saudi Arabia	36.4	6.2	20.5	-4.2	-19.4	-34.7	-43.3	0.6
9 Nigeria	7.5	5.9	378.9	33.2	5.1	215.2	16.8	0.8
10 Jamaica	11.5	5.3	86.9	2.2	3.7	46.8	8.0	0.8
	MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
TOP 10 GROWTH COUNTRIES 1998-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
1 Ireland	699.5	35.6	5.4	-7.5	314.3	81.6	26.5	9.8
2 Germany	1,400.7	34.5	2.5	3.0	299.8	27.2	13.0	4.7
3 France	864.8	-159.4	-15.6	-1.8	208.9	31.8	12.2	4.3
4 Korea, Republic Of	491.0	-255.8	-34.3	-20.4	187.6	61.9	34.2	2.2
5 United Kingdom	1,851.0	-81.9	-4.2	-1.9	173.5	10.3	4.4	4.5
6 Greece	189.7	156.5	471.9	6.4	160.9	559.1	-4.4	14.6
7 China (Mainland)	425.3	-76.7	-15.3	18.3	139.2	48.7	34.9	2.2
8 Philippines	426.2	-7.8	-1.8	-12.8	131.3	44.5	13.8	5.6
9 Belgium	415.5	112.6	37.2	-3.1	118.2	39.8	-2.8	3.1
10 Malaysia	285.4	-117.3	-29.1	-14.7	112.5	65.1	4.8	3.0
	MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
TOP 10 LOSSES 2000-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
1 Canada	2,844.5	-744.2	-20.7	-7.2	-459.1	-13.9	6.2	1.7
2 China (Taiwan)	512.6	-540.6	-51.3	-25.5	-23.4	-4.4	0.0	2.8
3 Netherlands	820.2	-444.7	-35.2	-11.1	-91.4	-10.0	2.7	4.2
4 Korea, Republic Of	491.0	-255.8	-34.3	-20.4	187.6	61.9	34.2	2.2
5 Japan	1,964.1	-219.7	-10.1	-11.7	110.5	6.0	-0.4	3.4
6 Singapore	494.8	-207.8	-29.6	-0.7	79.9	19.3	12.9	2.8
7 France	864.8	-159.4	-15.6	-1.8	208.9	31.8	12.2	4.3
8 Mexico	570.9	-130.5	-18.6	-9.1	100.6	21.4	28.5	0.6
9 Malaysia	285.4	-117.3	-29.1	-14.7	112.5	65.1	4.8	3.0
10 United Kingdom	1,851.0	-81.9	-4.2	-1.9	173.5	10.3	4.4	4.5
	MA (\$mil)	MA 00-01	MA 00-01	US 00-01	MA 98-01	MA 98-01	US 98-01	MA AS %
TOP 10 LOSSES 1998-2001	2001	INCR (\$mil)	%INCR	%INCR	INCR (\$mil)	%INCR	%INCR	US 2001
1 Canada	2,844.5	-744.2	-20.7	-7.2	-459.1	-13.9	6.2	1.7
2 Netherlands	820.2	-444.7	-35.2	-11.1	-91.4	-10.0	2.7	4.2
3 Finland	55.4	0.2	0.4	-1.1	-65.7	-54.3	-18.9	3.6
4 Sweden	170.9	-21.9	-11.4	-22.1	-42.0	-19.7	-7.1	4.8
5 Turkey	26.5	-16.0	-37.7	-16.7	-34.0	-56.2	-11.6	0.9
6 Switzerland	123.4	-43.8	-26.2	-1.1	-32.5	-20.8	35.6	1.3
7 Indonesia	19.5	-5.7	-22.5	-1.9	-32.0	-62.1	9.1	0.8
8 China (Taiwan)	512.6	-540.6	-51.3	-25.5	-23.4	-4.4	0.0	2.8
9 Spain	123.4	-59.8	-32.6	-8.1	-23.1	-15.8	6.3	2.1
10 Australia	237.6	-18.9	-7.4	-12.2	-21.2	-8.2	-8.3	2.2

■ 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
Dollar Value of Shipments in Millions

	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 COUNTRIES	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
Canada	2,844.5	-744.2	-20.7	-7.2	-459.1	-13.9	6.2	1.7
84 Industrial Machinery, Including Computers	777.5	-257.1	-24.8	-9.9	-326.3	-29.6	1.5	2.4
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	625.4	-363.1	-36.7	-21.2	-108.3	-14.8	-0.4	3.1
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	212.5	-1.7	-0.8	-6.8	33.1	18.5	15.4	3.5
48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	152.5	-18.6	-10.9	0.4	4.6	3.1	21.9	4.0
39 Plastics And Articles Thereof	146.1	-3.6	-2.4	-3.9	11.0	8.1	14.5	2.1
82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	81.7	12.2	17.5	-9.0	3.3	4.2	0.1	8.6
98 Special Classification Provisions, Nesoi	68.1	-13.9	-17.0	43.4	-6.4	-8.6	54.4	1.2
3 Fish, Crustaceans & Aquatic Invertebrates	50.7	-10.5	-17.2	-3.5	1.2	2.4	30.3	9.2
95 Toys, Games & Sport Equipment; Parts & Accessories	46.8	-4.4	-8.5	5.6	7.5	19.2	2.5	3.9
71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	36.3	1.7	4.9	-9.4	8.5	30.8	-14.0	3.8
Japan	1,964.1	-219.7	-10.1	-11.7	110.5	6.0	-0.4	3.4
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	585.4	-55.5	-8.7	-16.6	155.2	36.1	3.2	7.0
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	571.3	34.5	6.4	-1.1	125.4	28.1	23.5	9.4
84 Industrial Machinery, Including Computers	438.2	-158.9	-26.6	-15.2	-164.2	-27.3	14.4	4.5
30 Pharmaceutical Products	53.0	11.9	28.8	19.1	28.8	118.9	48.8	6.2
39 Plastics And Articles Thereof	41.7	-8.4	-16.7	-8.4	-3.3	-7.3	15.6	3.4
3 Fish, Crustaceans & Aquatic Invertebrates	32.0	-4.6	-12.6	-3.3	-10.2	-24.2	21.2	2.9
38 Miscellaneous Chemical Products	26.2	-16.0	-37.9	1.5	1.3	5.3	20.6	2.5
81 Base Metals Nesoi; Cermets; Articles Thereof	18.1	-6.3	-25.9	-1.9	6.5	55.8	-5.0	16.2
28 Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	16.7	-2.5	-13.1	1.1	-0.7	-4.1	13.9	1.3
95 Toys, Games & Sport Equipment; Parts & Accessories	15.0	6.2	70.9	-23.9	-15.5	-50.9	1.5	2.7
United Kingdom	1,851.0	-81.9	-4.2	-1.9	173.5	10.3	4.4	4.5
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	536.8	11.7	2.2	-16.9	178.4	49.8	5.5	10.0
84 Industrial Machinery, Including Computers	389.4	-142.0	-26.7	-6.6	-103.5	-21.0	3.6	3.8
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	319.4	17.8	5.9	-7.8	67.8	26.9	24.7	10.7
30 Pharmaceutical Products	207.3	62.2	42.9	89.3	97.1	88.1	312.0	8.5
82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	99.3	15.0	17.8	7.7	35.6	55.8	1.6	37.8
39 Plastics And Articles Thereof	74.7	10.6	16.5	1.5	17.4	30.3	2.1	9.3
95 Toys, Games & Sport Equipment; Parts & Accessories	33.7	14.1	71.8	-3.2	18.6	124.1	20.4	8.5
38 Miscellaneous Chemical Products	12.9	-4.1	-24.1	17.2	5.6	76.9	92.0	1.8
49 Printed Books, Newspapers Etc; Manuscripts Etc	12.8	3.9	44.2	-7.5	-2.7	-17.6	2.8	2.6
71 Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	9.6	-25.3	-72.6	-16.1	-89.1	-90.3	-40.9	0.5
Germany	1,400.7	34.5	2.5	3.0	299.8	27.2	13.0	4.7
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	537.4	-12.1	-2.2	6.6	295.5	122.1	41.4	12.9
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	309.0	47.0	18.0	8.6	75.1	32.1	30.6	8.5
84 Industrial Machinery, Including Computers	235.2	-23.4	-9.0	-1.0	-147.9	-38.6	17.9	3.0
30 Pharmaceutical Products	38.3	-23.7	-38.2	12.2	10.3	36.9	9.0	5.6
72 Iron And Steel	32.5	7.0	27.4	-9.1	25.1	337.9	92.4	32.4
39 Plastics And Articles Thereof	30.3	5.8	23.7	-3.8	10.2	50.5	-6.0	5.0
81 Base Metals Nesoi; Cermets; Articles Thereof	29.1	14.7	101.9	39.3	19.1	190.5	46.5	23.0
28 Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	21.0	0.2	1.1	-13.3	7.1	51.0	-21.9	10.6
38 Miscellaneous Chemical Products	19.5	-14.9	-43.3	-13.5	0.1	0.4	-12.8	3.3
49 Printed Books, Newspapers Etc; Manuscripts Etc	15.9	11.3	249.4	0.9	7.7	94.8	-15.0	14.9

■ 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
Dollar Value of Shipments in Millions

	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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
France	864.8	-159.4	-15.6	-1.8	208.9	31.8	12.2	4.3
29 Organic Chemicals	235.1	52.1	28.5	16.9	175.5	294.9	69.8	17.3
84 Industrial Machinery, Including Computers	204.2	-25.8	-11.2	-5.9	23.5	13.0	6.9	3.3
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	161.8	-171.9	-51.5	-24.5	3.0	1.9	0.0	7.8
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	122.9	-19.3	-13.6	-3.3	21.9	21.7	13.8	5.9
3 Fish, Crustaceans & Aquatic Invertebrates	25.6	-0.9	-3.5	-7.9	-11.6	-31.1	0.8	32.8
38 Miscellaneous Chemical Products	23.1	6.7	40.7	-5.2	8.0	53.4	-15.4	6.2
30 Pharmaceutical Products	18.4	1.5	8.7	25.2	1.6	9.3	99.2	2.8
39 Plastics And Articles Thereof	11.1	1.6	17.4	-11.8	-6.5	-36.8	-1.6	3.0
88 Aircraft, Spacecraft, And Parts Thereof	8.7	2.4	37.6	18.9	5.1	141.4	14.4	0.4
81 Base Metals Nesoi; Cermets; Articles Thereof	8.0	5.7	241.9	2.0	5.1	179.4	-11.8	9.2
Netherlands	820.2	-444.7	-35.2	-11.1	-91.4	-10.0	2.7	4.2
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	312.4	-24.8	-7.4	-5.3	78.6	33.6	8.6	14.5
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	206.8	-288.0	-58.2	-15.5	24.4	13.4	26.2	8.3
84 Industrial Machinery, Including Computers	103.8	-7.4	-6.6	-15.4	-67.3	-39.3	2.6	1.9
48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	43.7	-25.0	-36.4	-0.9	8.6	24.4	-15.1	19.2
39 Plastics And Articles Thereof	31.3	-19.2	-38.0	-7.8	-22.3	-41.6	-11.8	4.6
37 Photographic Or Cinematographic Goods	12.2	-66.7	-84.5	-53.5	-71.9	-85.5	-60.5	20.0
20 Prep Vegetables, Fruit, Nuts Or Other Plant Parts	11.3	9.8	637.4	4.5	11.1	6,891.0	29.6	9.5
98 Special Classification Provisions, Nesoi	11.0	-0.6	-4.9	-6.0	7.0	176.2	10.1	2.9
28 Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	10.0	-2.6	-20.3	-19.8	9.2	1,063.2	-26.7	8.1
49 Printed Books, Newspapers Etc; Manuscripts Etc	9.8	2.0	26.5	-10.9	3.1	47.0	1.3	9.6
Ireland	699.5	35.6	5.4	-7.5	314.3	81.6	26.5	9.8
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	384.1	9.3	2.5	-5.2	294.4	328.2	52.2	22.9
84 Industrial Machinery, Including Computers	138.8	-20.6	-12.9	-22.9	-26.4	-16.0	-7.9	7.2
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	87.0	21.3	32.4	44.3	7.9	9.9	113.9	9.3
30 Pharmaceutical Products	39.5	24.1	156.7	38.1	39.3	21,540.2	232.1	8.9
49 Printed Books, Newspapers Etc; Manuscripts Etc	11.4	7.2	171.0	68.4	2.9	34.5	20.9	45.4
39 Plastics And Articles Thereof	11.1	-2.3	-17.4	-3.3	6.0	118.0	36.1	7.7
73 Articles Of Iron Or Steel	4.1	0.9	27.5	-13.6	1.3	45.8	20.1	9.4
94 Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab Bd	2.9	1.7	147.9	-13.4	2.0	214.8	-21.2	22.0
48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	2.0	0.4	27.5	4.8	0.5	35.7	27.1	9.0
76 Aluminum And Articles Thereof	1.9	0.3	16.8	-38.1	-13.8	-88.1	-56.9	13.2
Mexico	570.9	-130.5	-18.6	-9.1	100.6	21.4	28.5	0.6
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	153.2	-33.5	-17.9	-15.7	65.9	75.6	32.4	0.6
39 Plastics And Articles Thereof	102.6	-9.5	-8.5	-8.0	22.8	28.6	33.2	1.5
84 Industrial Machinery, Including Computers	93.4	-22.9	-19.7	-6.2	-9.5	-9.2	30.3	0.6
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	46.8	-1.2	-2.4	7.1	5.9	14.4	40.8	1.5
72 Iron And Steel	17.9	4.1	29.6	5.6	2.0	12.8	21.7	1.5
47 Pulp Of Wood Etc; Waste Etc Of Paper & Paperboard	16.5	4.6	38.7	-19.1	15.5	1,572.3	7.4	4.1
33 Essential Oils Etc; Perfumery, Cosmetic Etc Preps	13.8	3.9	39.3	25.3	3.1	29.4	70.2	3.3
59 Impregnated Etc Text Fabrics; Tex Art For Industry	12.3	-0.9	-6.8	53.0	2.5	24.8	79.4	2.9
82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	10.8	-1.8	-14.3	-19.4	4.3	66.7	21.1	3.3
48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	10.2	-9.0	-46.9	-6.1	-8.1	-44.2	24.7	0.4

■ 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
Dollar Value of Shipments in Millions

	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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
China (Taiwan)	512.6	-540.6	-51.3	-25.5	-23.4	-4.4	0.0	2.8
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	216.3	-242.9	-52.9	-24.7	-36.4	-14.4	16.8	4.0
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	122.6	-257.6	-67.8	-41.8	8.2	7.1	23.0	9.5
84 Industrial Machinery, Including Computers	87.8	-53.2	-37.7	-38.9	2.6	3.0	12.1	2.4
39 Plastics And Articles Thereof	15.7	5.6	55.4	-17.1	9.9	171.0	19.4	2.6
41 Raw Hides And Skins (No Furskins) And Leather	7.2	7.0	4,278.8	1.3	6.7	1,476.4	17.3	2.7
37 Photographic Or Cinematographic Goods	7.1	3.5	97.8	-22.6	2.2	44.8	-4.2	13.1
98 Special Classification Provisions, Nesoi	5.8	-2.6	-31.4	-13.9	1.8	46.8	15.7	1.5
29 Organic Chemicals	5.6	4.0	244.3	-40.2	4.7	484.1	-16.2	0.9
38 Miscellaneous Chemical Products	4.7	1.7	59.5	-22.5	2.3	98.3	7.8	1.9
30 Pharmaceutical Products	4.4	0.0	-0.3	7.9	3.1	234.0	59.3	3.3
Singapore	494.8	-207.8	-29.6	-0.7	79.9	19.3	12.9	2.8
84 Industrial Machinery, Including Computers	140.1	19.9	16.5	-13.8	-1.0	-0.7	7.7	3.0
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	133.1	-78.5	-37.1	-25.2	27.2	25.7	13.9	13.0
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	127.2	-134.8	-51.5	-25.7	5.4	4.5	-15.1	2.9
39 Plastics And Articles Thereof	28.8	3.1	12.0	-16.8	16.4	133.0	13.7	5.3
98 Special Classification Provisions, Nesoi	14.0	0.1	0.9	-0.7	10.8	332.9	9.6	2.5
28 Inorg Chem; Prec & Rare-Earth Met & Radioact Compd	13.0	-3.8	-22.7	3.6	12.1	1,234.4	56.9	17.8
48 Paper & Paperboard & Articles (Inc Papr Pulp Artl)	4.7	1.3	38.2	-26.0	1.3	36.2	-24.3	6.7
82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	3.7	-1.1	-22.7	-26.0	1.0	36.4	10.7	7.2
38 Miscellaneous Chemical Products	3.6	-1.6	-30.3	-20.3	2.0	125.7	12.9	1.3
37 Photographic Or Cinematographic Goods	3.2	-6.0	-65.1	-17.0	0.5	17.4	15.4	3.7
Korea, Republic Of	491.0	-255.8	-34.3	-20.4	187.6	61.9	34.2	2.2
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	163.0	-164.8	-50.3	-39.8	35.9	28.2	8.5	3.1
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	91.0	-50.1	-35.5	-16.0	50.1	122.2	61.5	7.3
84 Industrial Machinery, Including Computers	91.0	-71.2	-43.9	-36.1	21.9	31.6	55.5	2.4
41 Raw Hides And Skins (No Furskins) And Leather	31.0	5.7	22.7	5.6	16.4	113.0	76.6	4.9
3 Fish, Crustaceans & Aquatic Invertebrates	24.4	7.7	46.0	48.8	18.6	320.5	240.7	7.9
39 Plastics And Articles Thereof	15.4	7.9	105.3	-9.2	7.9	104.6	40.8	2.9
72 Iron And Steel	10.4	3.5	51.1	-22.6	0.2	1.5	2.9	4.8
30 Pharmaceutical Products	7.1	2.1	42.4	36.4	4.8	205.9	166.4	5.7
26 Ores, Slag And Ash	5.5	5.5	20,233.3	64.9	5.5	NA	133.8	6.5
37 Photographic Or Cinematographic Goods	5.5	0.2	3.3	-16.6	4.9	738.1	32.0	9.6
Philippines	426.2	-7.8	-1.8	-12.8	131.3	44.5	13.8	5.6
85 Electric Machinery Etc; Sound Equip; Tv Equip; Pts	334.0	81.2	32.1	-9.5	132.6	65.8	26.5	6.8
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	50.7	-72.4	-58.8	-29.9	26.5	109.6	0.0	18.8
84 Industrial Machinery, Including Computers	20.9	-17.3	-45.2	-25.1	-13.9	-39.9	-37.9	4.0
49 Printed Books, Newspapers Etc; Manuscripts Etc	4.1	3.4	518.4	10.8	3.9	1,757.3	37.5	14.6
39 Plastics And Articles Thereof	2.6	-1.5	-37.0	-33.5	2.1	374.3	38.9	1.9
60 Knitted Or Crocheted Fabrics	2.4	-0.5	-16.7	-36.2	2.0	430.2	108.8	48.8
98 Special Classification Provisions, Nesoi	2.2	1.0	78.5	-7.9	1.8	398.7	15.4	1.2
82 Tools, Cutlery Etc. Of Base Metal & Parts Thereof	1.8	1.3	268.9	51.1	-0.6	-24.6	-7.3	17.5
62 Apparel Articles And Accessories, Not Knit Etc.	1.7	-0.2	-10.9	-51.2	-0.3	-13.8	-50.9	60.2
33 Essential Oils Etc; Perfumery, Cosmetic Etc Preps	0.8	-0.5	-37.5	13.7	0.0	-0.2	84.4	1.5

■ 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 6-Digit HS Commodities
Dollar Value of Shipments in Millions

		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 COUNTRIES	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
	Canada	2,844.5	-744.2	-20.7	-7.2	-459.1	-13.9	6.2	1.7
841112	Turbojets Of A Thrust Exceeding 25 Kn	152.3	-214.9	-58.5	5.2	-117.8	-43.6	98.3	23.8
847141	Digital Adp Mach,With Cp Unit,Input,Output, Nesoi	145.1	57.6	65.9	15.5	103.6	249.5	75.1	47.8
847330	Parts & Accessories For Adp Machines & Units	139.4	37.0	36.1	-7.0	-18.2	-11.5	50.2	5.3
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	79.9	-88.5	-52.5	-45.7	-99.3	-55.4	-35.2	3.3
821210	Razors	50.0	24.1	93.0	76.1	30.3	154.4	158.2	83.4
854230	Electronic Monolithic Integrated Circuit,N.E.S.O.I	48.4	-39.8	-45.1	-40.2	15.3	46.5	-39.7	14.3
850440	Static Converters; Adp Power Supplies	40.0	-18.4	-31.5	-11.2	10.7	36.6	25.7	8.0
987000	Special Canadian Classifications, Nesoi	38.0	-12.4	-24.6	-1.3	-6.8	-15.2	-2.7	2.0
847180	Automatic Data Processing Units, N.E.S.O.I.	37.2	-21.9	-37.1	-14.3	-16.5	-30.8	56.1	5.0
901890	Instr & Appl F Medical Surgical Dental Vet, Nesoi	32.4	9.3	40.4	22.0	17.5	118.3	65.2	7.2
	Japan	1,964.1	-219.7	-10.1	-11.7	110.5	6.0	-0.4	3.4
901839	Med Needles. Nesoi, Catherers Etc And Parts Etc	220.8	77.4	54.0	28.0	97.6	79.2	43.7	41.5
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	132.7	-8.3	-5.9	-22.5	69.8	111.1	29.0	34.0
852990	Pts,Ex Antenna,For Trnsmssn,Rdr,Radio,Tv,Etc Nesoi	100.3	60.7	153.3	-12.7	79.5	383.2	-58.2	18.0
847330	Parts & Accessories For Adp Machines & Units	57.2	-65.6	-53.4	-22.5	-147.5	-72.0	-5.2	3.2
903082	Inst To Check Semiconduct Wafers &Such That Record	41.4	9.6	30.1	18.7	38.6	1,358.2	76.2	26.6
901890	Instr & Appl F Medical Surgical Dental Vet, Nesoi	40.8	2.8	7.4	5.3	-14.5	-26.3	7.4	8.7
851750	Telecomm Apprtus,Carrier-Cur & Digital Systm,Nesoi	40.6	30.2	292.8	85.7	20.5	101.9	106.9	11.2
854390	Pt Elec Mach & Appr W Individual Functions, Nesoi	30.9	-7.2	-18.8	-31.4	19.2	164.2	48.8	41.5
847150	Digital Processing Units, N.E.S.O.I.	30.7	15.0	95.8	-16.0	-36.8	-54.6	6.3	7.6
847130	Port Digtl Automatic Data Process Mach Not > 10 Kg	30.5	-49.0	-61.7	-34.5	13.3	77.2	-15.0	35.7
	United Kingdom	1,851.0	-81.9	-4.2	-1.9	173.5	10.3	4.4	4.5
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	225.2	118.9	111.8	-19.2	134.8	149.0	21.3	21.3
300490	Medicaments Nesoi, Measured Doses, Retail Pk Nesoi	184.6	54.6	42.0	141.9	108.5	142.5	666.1	9.8
847330	Parts & Accessories For Adp Machines & Units	143.5	-71.3	-33.2	-24.4	-34.2	-19.2	-14.2	8.4
821210	Razors	85.1	10.0	13.3	15.5	42.4	99.0	36.1	97.0
902111	Artificial Joints And Parts And Accessories	48.7	5.4	12.5	19.7	6.2	14.6	42.5	38.6
847170	Automatic Data Processing Storage Units, N.E.S.O.I	39.0	24.1	162.6	2.7	29.1	296.3	-26.2	16.2
900691	Parts And Accessories For Still Photo Cameras	38.5	19.1	98.2	83.7	-0.8	-2.0	-1.9	92.1
854230	Electronic Monolithic Integrated Circuit,N.E.S.O.I	33.0	-7.4	-18.4	-18.0	2.2	7.2	39.0	19.9
847149	Digital Adp Mac & Units,Entered As Systems, Nesoi	32.0	-0.4	-1.1	23.6	5.9	22.4	-0.3	10.0
950632	Golf Balls	29.9	15.7	110.2	32.3	18.3	158.8	109.2	64.1
	Germany	1,400.7	34.5	2.5	3.0	299.8	27.2	13.0	4.7
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	136.0	-12.9	-8.7	30.5	116.8	606.0	301.7	39.3
901819	Electro-Diagnostic Apparatus Nesoi, And Parts Etc.	96.3	39.3	69.1	12.4	29.8	44.8	38.2	23.3
851840	Audio-Frequency Electric Amplifiers	55.9	23.0	69.8	10.9	55.7	23,437.8	25.6	85.9
854219	Monolithic Integrated Circuits, Digital, Nesoi	47.4	10.7	29.3	40.8	30.5	179.7	106.6	54.5
847330	Parts & Accessories For Adp Machines & Units	45.3	-11.8	-20.6	-6.7	-23.4	-34.0	30.3	2.8
847990	Pts Of Mach/Mechnci Appl W Indvdul Function Nesoi	40.9	21.8	114.1	5.8	31.5	333.9	118.9	19.7
901890	Instr & Appl F Medical Surgical Dental Vet, Nesoi	39.8	16.4	70.2	62.1	22.2	126.6	82.5	11.0
854311	Particle Accelerators,Ion Implanters For Smcndctrs	35.9	-4.0	-10.0	-12.3	22.1	160.5	166.1	91.9
851730	Telephonic Or Telegraphic Switching Apparatus	32.6	6.0	22.6	-7.1	25.6	365.2	15.0	54.6
722020	Flat-Rolled Stnls Stil Und 600mm Wide, Cld-Rld	31.3	8.2	35.7	40.6	24.7	370.9	240.9	76.2

■ 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 6-Digit HS Commodities
Dollar Value of Shipments in Millions

		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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
	France	864.8	-159.4	-15.6	-1.8	208.9	31.8	12.2	4.3
293799	Hormones And Deriv Nesoi, Steroids Etc Nesoi	233.8	52.0	28.6	26.3	174.6	294.5	280.1	100.0
842199	Filter/Purify Machine & Apparatus Parts	40.7	4.0	10.9	11.4	39.3	2,715.8	199.1	46.5
847330	Parts & Accessories For Adp Machines & Units	33.5	-13.3	-28.5	-14.3	-23.1	-40.8	-10.8	5.1
901890	Instr & Appl F Medical Surgical Dental Vet, Nesoi	32.5	8.9	37.6	20.2	6.9	27.0	-9.4	10.2
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	25.8	-43.2	-62.5	-53.6	-3.5	-11.9	-14.6	10.2
842122	Beverage Filtering Or Purifying Mach & Apparatus	25.0	3.1	14.0	15.9	25.0	NA	7,819.2	96.6
382200	Composite Diagnostic/Lab Reagents, Exc Pharmaceut	18.8	4.8	34.6	-12.6	8.6	83.5	-5.0	12.1
30622	Lobsters, Live, Fresh,Ch, Dried, Saltd Or In Brine	16.1	-0.7	-4.0	-8.4	0.7	4.6	29.7	60.3
300210	Antisera And Blood Fractions, Immun Products	14.8	2.0	15.8	15.8	2.3	18.3	-1.3	34.6
854311	Particle Accelerators,Ion Implanters For Smcndctrs	14.4	-45.2	-75.8	-77.1	9.8	211.1	87.7	100.0
	Netherlands	820.2	-444.7	-35.2	-11.1	-91.4	-10.0	2.7	4.2
900691	Parts And Accessories For Still Photo Cameras	88.3	66.7	308.5	239.6	67.8	329.3	327.6	97.5
901839	Med Needles. Nesoi, Catherers Etc And Parts Etc	82.9	-94.7	-53.3	-19.8	-23.1	-21.8	17.3	29.2
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	71.8	-252.8	-77.9	-39.3	15.7	27.9	82.0	20.3
901890	Instr & Appl F Medical Surgical Dental Vet, Nesoi	25.2	18.0	251.1	3.5	6.7	36.5	-8.7	9.7
480252	Paper Nesoi, Nov 10% Fib Mech Pr, 40g/M2nov150g/M2	24.8	-3.0	-10.7	-18.4	24.8	126,833.4	1,211.8	97.7
847170	Automatic Data Processing Storage Units, N.E.S.O.I	20.7	14.1	210.6	-12.4	14.0	209.5	-22.6	5.5
850610	Primary Cells And Batteries, Manganese Dioxide	19.7	19.3	4,948.9	2,518.8	19.7	NA	6,462.2	98.3
851750	Telecomm Apptus,Carrier-Cur & Digital Systm,Nesoi	19.3	-5.2	-21.3	49.7	-2.8	-12.7	306.6	5.9
902790	Pts Of Inst, Phys/Chem Analysis Etc, Nesoi	17.7	6.4	57.0	35.9	7.9	81.4	130.9	28.5
847330	Parts & Accessories For Adp Machines & Units	16.6	-8.9	-34.8	-35.2	-57.4	-77.6	-16.8	1.0
	Ireland	699.5	35.6	5.4	-7.5	314.3	81.6	26.5	9.8
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	181.3	-21.5	-10.6	24.4	181.2	166,407.5	649.5	45.3
847330	Parts & Accessories For Adp Machines & Units	70.5	-6.9	-8.9	-24.3	-31.2	-30.7	-13.7	10.7
853400	Printed Circuits	38.9	18.9	94.7	-31.0	34.6	811.5	97.8	24.0
300439	Hormones Etc. (No Antibiotics Contained) Dosage Fm	32.3	32.3	NA	68,741.9	32.3	NA	37,808.9	84.9
853669	Elect Plugs & Sockets F Voltage Not Over 1000 V	28.1	20.3	262.1	-13.6	25.8	1,131.0	49.0	57.8
851890	Pts Micro-Head-Ear-Phone,Elect Snd Ampl Sets Etc	27.2	-0.2	-0.7	-0.3	20.3	293.4	188.0	97.1
901839	Med Needles. Nesoi, Catherers Etc And Parts Etc	20.1	3.3	19.8	24.9	-8.4	-29.6	63.5	16.8
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	19.7	0.6	3.1	-20.8	12.7	182.1	6.8	9.3
847170	Automatic Data Processing Storage Units, N.E.S.O.I	17.1	1.8	11.8	-13.4	10.1	144.3	-25.0	9.3
847180	Automatic Data Processing Units, N.E.S.O.I.	15.1	-10.9	-42.0	-30.7	-4.4	-22.6	43.6	5.6
	Mexico	570.9	-130.5	-18.6	-9.1	100.6	21.4	28.5	0.6
390740	Polycarbonates, Pr Fms	36.0	-7.3	-16.9	-3.6	11.5	46.8	57.2	35.3
854219	Monolithic Integrated Circuits, Digital, Nesoi	17.9	-0.7	-3.8	-43.3	16.6	1,204.4	49.8	10.3
850610	Primary Cells And Batteries, Manganese Dioxide	15.5	15.5	NA	14.9	15.5	NA	128.8	27.9
720449	Ferrous Waste & Scrap Nesoi	15.1	2.0	15.7	-23.6	1.4	10.2	-28.6	27.7
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	11.1	-6.0	-35.0	-34.8	8.8	373.5	-32.0	2.6
853890	Pt F Elect Appr F Elect Cirt; F Elct Contrl Nesoi	10.8	-14.3	-57.1	-29.7	0.1	1.0	-16.8	1.5
391000	Silicones, In Primary Forms	9.4	-0.2	-2.2	-17.7	1.3	15.4	-53.1	18.6
390599	Vinyl Polymers In Primary Forms, N.E.S.O.I.	9.1	-0.1	-0.5	-2.6	-3.9	-29.9	12.4	29.5
851829	Loudspeakers, Nesoi	9.1	7.9	647.8	10.7	9.0	8,212.0	60.8	14.2
470321	Chemical Woodpulp, Soda Etc. N Dis S BI & BI Conif	8.7	1.6	23.1	-18.4	8.5	5,005.5	26.8	4.8

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Table 8 (continued)
Massachusetts Exports by Country of Destination by Leading HS Commodities
Top 12 Countries by Top 10 6-Digit HS Commodities
Dollar Value of Shipments in Millions

		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	17,490.1	-3,024.3	-14.7	-6.3	1,611.9	10.2	7.4	2.4
	China (Taiwan)	512.6	-540.6	-51.3	-25.5	-23.4	-4.4	0.0	2.8
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	34.5	-24.1	-41.1	-24.4	-16.0	-31.7	59.6	1.3
903082	Inst To Check Semiconduct Wafers &Such That Record	33.4	-109.8	-76.7	-75.8	24.2	262.5	10.5	24.5
854311	Particle Accelerators,Ion Implanters For Smcndctrs	28.7	-116.9	-80.3	-78.7	-32.8	-53.3	-49.5	86.2
854390	Pt Elec Mach & Appr W Individual Functions, Nesoi	27.1	-18.3	-40.3	-21.9	12.8	89.3	67.6	52.1
854219	Monolithic Integrated Circuits, Digital, Nesoi	24.8	-21.8	-46.8	-5.6	16.1	183.3	56.0	28.8
903090	Pts Of Inst F Meas Elect Quat Alpha Beta Inzng Rdt	23.4	-21.4	-47.7	-21.6	9.9	73.2	90.5	24.3
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	16.4	-54.5	-76.8	-48.7	9.3	130.9	31.4	10.2
851730	Telephonic Or Telegraphic Switching Apparatus	15.9	12.3	345.9	31.9	6.7	72.1	14.0	43.1
903141	Optical Inst For Inspecting Semiconductor Wafers	15.2	3.6	31.3	-47.7	7.4	94.0	67.6	7.7
854230	Electronic Monolithic Integrated Circuit,N.E.S.O.I	11.8	-5.1	-30.2	-12.4	-10.0	-45.7	-5.2	1.7
	Singapore	494.8	-207.8	-29.6	-0.7	79.9	19.3	12.9	2.8
847330	Parts & Accessories For Adp Machines & Units	65.8	26.4	66.8	-23.7	-7.0	-9.7	4.7	7.5
903082	Inst To Check Semiconduct Wafers &Such That Record	32.3	-24.0	-42.6	-67.9	19.3	149.3	-3.9	45.8
903090	Pts Of Inst F Meas Elect Quat Alpha Beta Inzng Rdt	31.0	2.5	8.6	23.1	16.5	113.8	259.8	20.2
854230	Electronic Monolithic Integrated Circuit,N.E.S.O.I	26.5	6.4	31.8	0.2	7.7	40.9	-9.7	4.5
980110	Value Of Repair/Alter Articles Previous Imported	13.7	0.8	6.2	95.5	11.1	424.5	149.4	8.4
901839	Med Needles. Nesoi, Catherers Etc And Parts Etc	12.7	2.7	27.3	20.6	2.4	22.8	6.9	52.0
392091	Plates Etc, Noncell Etc, No R, Polyvinyl Butyral	12.5	4.1	48.7	42.8	7.1	134.5	187.6	62.3
903290	Pts, Autom Regulating/Controlling Inst & Apprts	12.0	6.0	99.4	-2.8	9.8	429.5	26.7	57.6
283719	Cyanides And Cyanide Oxides, Nesoi	11.8	-2.8	-19.0	15.3	11.8	NA	2,871.3	59.6
392113	Plates, Sheets Etc. Nesoi, Cellular Polyurethanes	10.3	3.6	52.8	42.5	10.3	16,094.3	2,674.2	50.0
	Korea, Republic Of	491.0	-255.8	-34.3	-20.4	187.6	61.9	34.2	2.2
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	31.0	-13.7	-30.7	-47.9	18.3	144.5	-13.1	1.3
410121	Bovine Hides & Skins, Whole, Nesoi, Fr Or Wet Salt	29.6	5.3	21.8	7.0	16.3	122.6	89.7	6.2
854240	Electronic Hybrid Integrated Circuits	24.5	15.2	163.1	47.0	24.4	108,439.1	156.6	45.2
854311	Particle Accelerators,Ion Implanters For Smcndctrs	20.4	-34.0	-62.5	-56.9	20.4	NA	1,545.5	47.7
900220	Filters & Parts & Accessories For Instr & Appratus	16.4	-18.0	-52.2	-49.7	16.4	315,433.5	6,258.9	92.9
851790	Pt Elect Appr F Line Telephony Or Telegraphy Etc.	14.2	-49.7	-77.8	-60.6	7.8	123.9	38.1	11.6
30379	Fish, Nesoi, With Bones, Frozen	13.8	6.7	94.8	-1.3	9.4	212.8	98.6	43.7
903082	Inst To Check Semiconduct Wafers &Such That Record	12.6	-9.4	-42.9	-63.0	11.7	1,357.9	126.1	24.6
854390	Pt Elec Mach & Appr W Individual Functions, Nesoi	12.5	-6.0	-32.6	-19.7	7.5	151.3	51.0	26.4
392091	Plates Etc, Noncell Etc, No R, Polyvinyl Butyral	10.1	7.5	292.4	23.8	6.2	159.8	83.7	39.5
	Philippines	426.2	-7.8	-1.8	-12.8	131.3	44.5	13.8	5.6
854213	Metal Oxide Semiconductors(Mos),Mono Digital Integ	221.6	94.1	73.7	-16.2	206.2	1,338.2	33.6	7.5
854230	Electronic Monolithic Integrated Circuit,N.E.S.O.I	64.0	2.8	4.5	66.9	35.8	126.8	161.1	7.7
903082	Inst To Check Semiconduct Wafers &Such That Record	23.5	-40.9	-63.4	-45.0	21.6	1,094.8	-32.7	35.5
903090	Pts Of Inst F Meas Elect Quat Alpha Beta Inzng Rdt	16.2	3.9	31.5	1.9	9.8	150.6	36.0	22.8
854219	Monolithic Integrated Circuits, Digital, Nesoi	13.8	5.4	64.5	-12.8	12.4	868.3	629.6	5.4
854110	Diodes Ex Photosensitive Or Light-Emitting Diodes	10.0	5.7	130.5	20.1	8.8	749.1	466.5	22.5
847990	Pts Of Mach/MechncI Appl W Indvdul Function Nesoi	5.2	-2.1	-29.1	-56.8	-13.0	-71.4	-77.0	26.4
847989	Mach & Mechanical Appl W Individual Function Nesoi	5.1	-2.6	-34.0	-41.5	1.6	46.9	-69.9	16.3
853690	Elect Appr F Prctc To Elect Cirtc Nov 1000 V Nesoi	3.3	3.1	1,540.5	-47.7	-3.6	-52.4	25.5	15.6
490199	Printed Books, Brochures, Etc., Nesoi	2.8	2.2	358.2	2.3	2.7	2,607.9	89.6	15.5

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VI. 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, introduced by the Census Bureau in 1993. 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. Recent shifts in the EL series, resulting from increased electronic filing of export documentation, have led Census to recommend use of the OM series over the EL as more consistent.

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 4,500 6-digit HS commodity classifications.

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 not used in this report because the data are not very detailed by industry.

MISER Imputations

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 is expected to decline rapidly in the next few years. The value of “unknowns” in the data has already fallen from 25% of the total value of US exports in 1987 to under 10% in 2000. State exports by NAICS and HS should not be compared to state exports by SIC with MISER imputations even by total value of exports. State export values by SIC will be, on average, 10% higher than state exports by NAICS and HS.

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 6-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 6-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.