

Employment Effects of the New Excise Tax on the Medical Device Industry

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Executive Summary

One provision of the new healthcare law is a 2.3% excise tax on the medical device industry which will take effect in 2013. This study estimates the potential effect of the device tax on employment in the medical device industry. The study finds that the tax could reduce employment in the industry by cutting back on the demand for medical devices and by encouraging American firms to shift production overseas.

- In 2009, the medical device industry provided well-paying jobs to more than 409,000 employees, who earned more than \$33 billion dollars in labor compensation.
- Under reasonable assumptions, the tax could result in job losses in excess of 43,000 and employment compensation losses in excess of \$3.5 billion.
- The tax will also especially harm states with large employment in the medical device industry including California, Florida, Illinois, Indiana, Massachusetts, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin.
- The new 2.3% excise tax will roughly double the device industry's total tax bill and raise the average effective corporate income tax rate to one the highest effective tax rates faced by any industry in the world. Moreover, the new tax will be paid both by firms that have net income and those that do not. The tax will be especially harmful to companies that innovate and tend to suffer losses in the first years or when investing in research and development for a new product but would still be required to pay the tax.
- Under the tax, U.S. manufacturers will be more likely to close plants in the United States and replace them with plants in foreign countries.
- Foreign manufacturers will improve their competitiveness relative to American firms, and U.S. leadership in this industry could be threatened.
- The Joint Tax Committee estimates that the tax will raise \$20 billion in revenues over the period 2013-2019, a cost to device companies and the American consumer. The economic impact of the tax on wages and output will be significantly higher.

Background

Within the health care law is a provision to impose a federal excise tax of 2.3% on manufacturers of medical devices beginning in 2013.³ The tax will be applied to “taxable medical devices” based on statutory definitions of medical devices⁴ as well as complex rules yet to be written by the Secretary of the Treasury.⁵ The tax will be applied to manufactured devices, but will exclude devices generally purchased by consumers at retail for individual use, and other products at the discretion of the Secretary of the Treasury.⁶ The excise tax will substantially harm the American consumer, the American medical device manufacturing industry, and workers in that industry. This paper examines the effect of the tax on American consumers, American businesses, and American workers.

The new federal excise tax will be applied to all sales of a product before other forms of state and local sales taxes are applied.⁷ The federal government has applied excise taxes to some goods, such as gasoline, to support a trust fund for the payment of infrastructure, such as roads. The federal government also applies excise taxes to “sin” goods such as alcohol and tobacco whose consumption the government may reasonably seek to discourage. This excise tax is somewhat unique in that it is intended to fulfill neither of these objectives but is designed to raise revenues.

The medical device manufacturing industry

The medical device manufacturing industry contributes to the economy of every state. Its revenues exceed \$116 billion annually, and it is one of the healthier segments of American manufacturing, other segments of which have been declining. Medical devices are distributed through wholesale distribution networks which likely add an additional 34% or \$39 billion to the value of medical devices.⁸ The total wholesale value of medical devices was approximately \$155 billion in 2009.

Table 1 summarizes the overall economic activity of the medical device manufacturing industry. The industry consists of thousands of firms, and these can be divided into eight industry segments: *in vitro* diagnostic substance manufacturing,

³ See PL 111-152, Section 1405, presented in Appendix A.

⁴ See Federal Food, Drug, and Cosmetic Act, Section 201(h), Appendix B.

⁵ PL 111-152, at Section 1405.

⁶ Ibid.

⁷ Federal excise taxes are presented in Subtitles D and E of Title 26 of the U.S. Code.

⁸ Correspondence with G. Donahoe regarding the relationship between wholesale spending and the value of manufactured shipments of medical devices, February 7, 2011. See also G. Donahoe and G. King, “Estimates of Medical Device Spending in the United States, May 2009.

electromedical and electrotherapeutic apparatus manufacturing, irradiation apparatus manufacturing, surgical and medical instrument manufacturing, surgical appliance and supplies manufacturing, dental equipment and supplies manufacturing, ophthalmic goods manufacturing, and dental laboratories.

Collectively, the industry employed more than 409,000 employees in 2009, who earned more than \$33 billion dollars in labor compensation at more than 12,000 establishments around America.⁹ Labor costs per employee of more than \$81,000 are well above average compensation for the American economy.¹⁰ The industry produced more than \$116 billion dollars of products of which nearly \$88 billion was value added (contributions by labor and capital within the industry). As noted above, the wholesale value of these shipments would be approximately \$155 billion. The industry spent more than \$3.7 billion on new plant and equipment in 2009.

Table 1 reflects the economic activity of just manufacturing related to medical devices. Not included in Table 1 are the wholesale and retail distribution channels that make medical devices available to the health care sector as well as to the general public. Nor does Table 1 include the health care industries that use medical devices to provide medical services to the public. The economic size of this distribution and industries related to medical devices are even larger than the manufacturing activities.

More details are available in Tables 2 through 5 which display, by state, the estimated employment, value of shipments, and value added in 2009 for major segments of the medical device manufacturing industry. If wholesale distribution were included, the value of medical devices would be even greater. Table 6 presents summary statistics, by state in 2009, for all of the segments of the medical device industry included in Table 1. The industry is located in each state plus the District of Columbia.

California, with more than 76,000 industry employees, has the largest share of the medical device manufacturing industry. Other states with more than 10,000 employees include Florida, Illinois, Indiana, Massachusetts, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin. Each of these states also has more than \$2.3 billion in value added from medical devices. Jobs in the medical device industry pay above-average wages. As shown in Table 1, total labor compensation per employee in the industry is more than \$81,000 annually. These jobs are an important

⁹ The number of establishments is from the 2007 Census of Manufacturers.

¹⁰ This figure includes wages and fringe benefits for employees.

component of these states' economies, and form a segment of the growing advanced manufacturing sector.

Medical device manufacturing is a major source of exports for the United States. Table 7 shows that the industry exported more than \$32 billion in first eleven months of 2010. (Table 7 does not include export data for *in vitro* diagnostic substances, dental laboratories, or irradiation apparatus manufacturing. Export and import information is not available for these industries.) Roughly one third of medical devices manufactured in the United States are exported, an unusually high proportion for an American industry. Major markets include Japan, the Netherlands, Canada, Germany, and Mexico. Appendix C presents the exports of medical devices by segments to 215 different countries in 2010.

The United States also imports medical devices from around the world as shown in Table 8. During the first 11 months of 2010, the United States imported more than \$30 billion worth of devices. Major sources of supply include Mexico, Ireland, China, Germany, and Japan. Appendix C presents the imports of medical devices by segments to more than 200 different countries in 2010.

For most segments of manufacturing, American imports substantially exceed exports. Medical devices are a rare exception with the U.S consistently enjoying a favorable balance of trade. Domestic consumption of medical devices in 2009 was approximately \$116 billion at the manufacturers' level and \$155 billion at the wholesale level of trade.

The effect of the new excise tax

The new excise tax is complex, and it will substantially raise the tax burden on the medical device manufacturing industry. In response to the new tax, prices of medical devices will rise, and consumers and health care providers will pay more for medical devices. The exact change in prices for medical devices as a result of the excise tax will depend on various economic parameters, but an estimated half or more of the excise tax will likely be passed along to end users in terms of higher prices.¹¹ Correspondingly, the quantity of medical devices demanded will decline in response to the higher prices that include the excise taxes.

¹¹ The effect of an excise tax on prices and quantities demanded is a standard topic in introductory economics courses. Depending on the elasticity of demand with respect to prices and the elasticity of supply with respect to prices, some or all of the excise tax will be passed along to consumer through higher prices.

Economists have techniques to measure the efficiency of taxes, including excise taxes. Economic efficiency for taxes is usually measured as the minimum distortion of the economic activity that would prevail absent the tax. The standard findings are that goods whose demand or supply is relatively insensitive to price changes have fewer distortions from excise taxes than goods which are price sensitive.¹² We are not aware of any economic studies that measure the price sensitivities of the medical devices that will likely be included in the final tax rules, but practically all goods have some elasticity of demand. There is no reason to assume that the demand for medical devices is inelastic. Consequently, the imposition of the excise tax on medical device manufacturers will likely lead to distortions in demand.

The estimated effect of excise taxes on the market for medical device manufactures can be viewed graphically. In Figure 1, without an excise tax, Demand is represented by the line D and Supply is represented by the line S, and prices in equilibrium as p with quantity q . Now an excise tax is applied and the supply curve shifts upwards to $S^{\text{excise tax}}$, with new equilibrium price of $p^{\text{excise tax}}$ and new quantity $q^{\text{excise tax}}$. The government collects revenue equal to $\text{tax} \cdot (q^{\text{excise tax}} - q)$. The revenue is paid by lost consumer welfare represented in area A, and lost producer welfare, represented in area B in Figure 1.

Excise taxes are known to be inefficient. Excise taxes not only distort economic decisions, but they affect all firms, whether they are profitable or not. Loss-making firms will still owe the excise tax, so they could be in the peculiar position of paying taxes to the federal government while not making any profits themselves. The tax would be especially harmful to companies that innovate, and hence tend to suffer losses in the first years or when investing in research and development for a new product. Such a company might have large market share, but no profits, in the initial years after research takes place. Companies that innovate frequently have losses, but they would be required to pay the tax anyway. Thus, the market share tax could be an unintentional tax on innovation.

¹² Economists measure price sensitivity of a good through its elasticities of demand and supply.

The possible effects of the excise tax assuming no shift in production offshore – Sensitivity Analysis I

In Table 9, we have conducted sensitivity analyses of the losses in employment and labor compensation as a result of the new excise tax on medical devices under the unlikely assumption that no manufacturing activity moves overseas as a result of the new tax. The calculations in Table 9 are under the assumption that the tax is imposed directly on manufacturers. The inability of manufacturers to shift production offshore is implausible and is the most conservative assumption possible about the outcome of the new excise tax. The analyses look at reasonable ranges of changes in demand and supply in response to a new tax. The tax would likely increase the after-tax prices to American consumers between .02% and 2.1% with most price increases around 1%. Medical device demand would decline between \$0.67 and \$6.7 billion annually. Industry employment should decline between 2,300 and 23,000.

Employment compensation would likely decline between \$190 million and \$1.9 billion annually. We have made no assumptions about the ease with which workers would be able to find alternative employment, but economic rationality requires that the compensation in the alternative employment would be no greater – and almost certainly much less – than in the medical device industry.

The possible effects of the excise tax assuming some shift in production offshore – Sensitivity Analysis II

It is impossible to predict exactly where losses in the medical device industry would occur as a result of the excise tax. In fact, some manufacturing of medical devices may shift offshore as a result of the new excise tax to minimize losses. Studies have found that many (non-device) manufacturing operations have relocated from the United States abroad in recent years with substantial losses in American manufacturing employment.¹³ Many manufacturing industries have had substantial reductions of

¹³ See, e.g., S. Houseman, C. Kurz, P. Lengermann, and B. Mandel, “Offshoring and the State of American Manufacturing, Upjohn Institute Working Paper 10-166, June 2010; S. Helper and H. Wial, “Strengthening American Manufacturing: A New Federal Approach,” Brookings Institution, September 2010; M. McMillan, “Production Offshoring and Labor Markets: Recent Evidence and a Research Agenda, National Bureau for Economic Research,” June 2009; Paul Krugman, “Macroeconomic Effects of Chinese Mercantilism,” <http://krugman.blogs.nytimes.com/2009/12/31/macroeconomic-effects-of-chinese-mercantilism>, December 31, 2009.

operations with employment losses well in excess of 10% over the past few years.¹⁴ Many medical device manufacturers already have plants overseas, so shifting at least some production would not be difficult.

Jobs can effectively move overseas in two ways. U.S. manufacturers can close plants in the United States and replace them with plants in foreign countries, or locate future job growth abroad rather than in the United States. Alternatively, foreign manufacturers can improve their competitiveness relative to U.S. firms with the result that manufacturing for the American market is increasingly dominated by foreign-domiciled companies. Both are likely to occur under the new excise tax.

The effect of the tax on earnings of U.S. companies is likely to be significant. In 2006, medical device manufacturers reported taxable income of \$13.7 billion and paid \$3.1 billion in corporate taxes. The United States already has one of the highest corporate income tax rates in the world. The new 2.3% excise tax will roughly double their total tax bill and raise the average effective corporate income tax rate to one of the highest effective tax rates faced by any industry in the world.¹⁵ Moreover, the new tax will be paid both by firms that have net income and those that do not.

Ninety-five percent of American device firms have sales of less than \$100 million, and these firms manufacture exclusively or primarily for the domestic market. Even larger American firms with substantial international sales typically sell a much higher proportion of their products in the U.S. market than do their foreign-based competitors.

Accordingly, American-domiciled firms will be at a significant disadvantage compared to foreign competitors. Smaller companies selling exclusively in the domestic market will be hardest hit in their ability to maintain profitability, attract capital or invest in innovative products compared to foreign rivals. Even large international firms will be placed at a disadvantage relative to their foreign competitors. Large companies will move jobs abroad or place a higher share of their new employment abroad as the relative profitability of sales in foreign markets increases. Start-up companies will increasingly locate abroad rather than in the United States.

In Table 10, we have calculated the effect of the excise tax if between 1% and 30% of domestic production shifts offshore. Even with relatively modest shifts in offshore production, the effect of the tax on employment and employment compensation are

¹⁴ In just one year, all U.S. manufacturing declined by 19% between 2008 and 2009. U.S. Census Bureau, Annual Survey of Manufactures, at www.census.gov. The decline was substantially greater in many industries.

¹⁵ Robert Carroll, "An Analysis of the Proposed Medical Device Manufacturer's Fee," September, 2009.

much more substantial than under the assumption of no loss of production offshore. For example, if 15% of production were to migrate offshore as a result of the excise tax, U.S. industry employment would decline between 63,000 and 85,000 while employment compensation would decline between \$5 billion and \$7 billion. Doubling the shift of production offshore to 30 would have approximately double the effect.

The harmful economic effects of the excise tax will likely be felt in every state. It is difficult to measure precisely the losses in each state because, at any given time independent of the new excise tax, some manufacturing operations are expanding while others are contracting. Table 11 allocates lost employment and employment compensation to each state under the assumption of a mid-range values for the sensitivity of demand and supply to price¹⁶ and a conservative assumption that 10% of manufacturing activity moves offshore. Industry employment declines in every state and totals more than 45,000 nationwide. Fourteen states would be expected to lose 1,000 workers or more. Employment compensation declines by more than \$3.7 billion. These states include: California, Florida, Illinois, Indiana, Massachusetts, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Tennessee, Texas, Utah, and Wisconsin.

Any possible benefits of the excise tax are likely to be overwhelmed by the costs

At the time of passage of the new law, the Joint Committee on Taxation estimated tax revenue at between \$2.7 billion and \$3.4 billion annually between 2014 and 2019.¹⁷ The excise tax was estimated at the time of enactment to raise \$20 billion over the period 2013-2019.¹⁸ These estimated revenues are likely less than lost labor income and capital income from displacement as the result of the tax as illustrated in Table 11. The excise tax may also cause dislocations outside the medical device manufacturing industry. The Lewin Group, using a multiplier analysis, finds substantial effects on employment in the broader economy from the medical devices industry.¹⁹

¹⁶ We assume elasticities of 1.0 for both demand and supply.

¹⁷ Joint Committee on Taxation. Estimated Revenue Effects of the Amendment in the Nature of a Substitute to H.R. 4872, The "Reconciliation Act of 2010." March 20, 2010, JCX 17010, at <http://www.jct.gov/publications.html?func=startdown&id=3672>.

¹⁸ Ibid.

¹⁹ The Lewin Group, "State Economic Impact of the Medical Technology Industry," prepared for Advamed, June 10, 2010.

Table 1
2009 Medical Devices Industry Summary Statistics

Industry	Number of employees	Total Labor costs (\$1,000)	Total labor costs per employee	Value of products shipments (\$1,000)	Value added (\$1,000)	Total capital expenditures (new and used) (\$1,000)
In-vitro diagnostic substance manufacturing	26,516	3,000,557	107,002	8,374,814	8,134,126	423,819
Electromedical and electrotherapeutic apparatus manufacturing	63,926	6,694,475	98,719	23,407,974	16,469,553	823,805
Irradiation apparatus manufacturing	14,361	1,590,977	107,414	5,229,598	2,989,021	66,838
Surgical and medical instrument manufacturing	113,916	9,013,160	73,783	33,593,172	24,866,860	1,211,062
Surgical appliance and supplies manufacturing	108,375	8,467,944	72,637	32,252,015	25,464,947	886,624
Dental equipment and supplies manufacturing	14,681	1,041,193	68,054	3,910,138	2,788,197	76,522
Ophthalmic goods manufacturing	21,448	1,338,734	58,579	5,341,426	3,864,756	174,021
Dental laboratories	46,423	2,207,037	45,184	4,139,101	3,247,457	104,375
Total Medical Devices Industry	409,646	33,354,077	81,422	116,248,238	87,824,917	3,767,066

* Total labor costs are the sum of payroll, fringe benefits, and contract labor costs plus temporary staff and leased employees.
Source: Census Bureau, 2009 Annual Survey of Manufacturers,
at http://factfinder.census.gov/servlet/IBQTable?_bm=y&-ds_name=AM0931GS101.

Table 2

2009 Economic Values for
Electromedical and electrotherapeutic apparatus manufacturing
by State

	Estimated Employment	Estimated value of shipments (in \$1,000)	Estimated value added (in \$1,000)
Alabama	196	71,923	50,604
Alaska	0	0	0
Arizona	2288	837,780	589,452
Arkansas	11	3,976	2,797
California	13058	4,781,637	3,364,299
Colorado	1855	679,115	477,817
Connecticut	818	299,620	210,809
Delaware	0	0	0
District of Columbia	0	0	0
Florida	2246	822,601	578,771
Georgia	72	26,384	18,563
Hawaii	67	24,577	17,292
Idaho	11	3,976	2,797
Illinois	1247	456,478	321,172
Indiana	190	69,393	48,824
Iowa	421	154,328	108,583
Kansas	11	3,976	2,797
Kentucky	11	3,976	2,797
Louisiana	0	0	0
Maine	844	309,017	217,421
Maryland	533	195,169	137,318
Massachusetts	5107	1,870,007	1,315,713
Michigan	573	209,987	147,744
Minnesota	8441	3,090,896	2,174,715
Mississippi	0	0	0
Missouri	196	71,923	50,604
Montana	67	24,577	17,292
Nebraska	0	0	0
Nevada	19	6,867	4,832
New Hampshire	421	154,328	108,583
New Jersey	2025	741,642	521,810
New Mexico	11	3,976	2,797
New York	2119	775,977	545,967
North Carolina	67	24,577	17,292
North Dakota	0	0	0
Ohio	908	332,510	233,950
Oklahoma	67	24,577	17,292
Oregon	1111	406,963	286,334
Pennsylvania	3253	1,191,253	838,150
Rhode Island	421	154,328	108,583
South Carolina	844	309,017	217,421
South Dakota	196	71,923	50,604
Tennessee	175	63,972	45,010
Texas	1936	708,752	498,669
Utah	2573	942,232	662,942
Vermont	61	22,408	15,766
Virginia	147	53,852	37,890
Washington	3633	1,330,401	936,053
West Virginia	0	0	0
Wisconsin	5662	2,073,127	1,458,626
Wyoming	11	3,976	2,797
Total	63,926	23,407,974	16,469,553

Authors' calculations based on data from the following sources:
Census Bureau, 2008 County Business Patterns,
at <http://censtats.census.gov/cgi-bin/cbpnaic/cbpsel.pl>
the Annual Survey of Manufactures at
http://factfinder.census.gov/servlet/IBQTable?_bm=y&-ds_name=AM0931GS101

Table 3

2009 Economic Values for
Irradiation apparatus manufacturing
by State

	Estimated Employment	Estimated value of shipments (in \$1,000)	Estimated value added (in \$1,000)
Alabama	45	16,392	9,369
Alaska	7	2,588	1,479
Arizona	7	2,588	1,479
Arkansas	0	-	-
California	1668	607,364	347,144
Colorado	7	2,588	1,479
Connecticut	371	135,161	77,253
Delaware	133	48,313	27,614
District of Columbia	0	-	-
Florida	285	103,816	59,337
Georgia	7	2,588	1,479
Hawaii	0	-	-
Idaho	0	-	-
Illinois	1192	433,955	248,030
Indiana	45	16,392	9,369
Iowa	0	-	-
Kansas	0	-	-
Kentucky	45	16,392	9,369
Louisiana	7	2,588	1,479
Maine	0	-	-
Maryland	7	2,588	1,479
Massachusetts	1853	674,945	385,770
Michigan	45	16,392	9,369
Minnesota	45	16,392	9,369
Mississippi	7	2,588	1,479
Missouri	45	16,392	9,369
Montana	0	-	-
Nebraska	0	-	-
Nevada	133	48,313	27,614
New Hampshire	7	2,588	1,479
New Jersey	133	48,313	27,614
New Mexico	7	2,588	1,479
New York	381	138,612	79,225
North Carolina	7	2,588	1,479
North Dakota	0	-	-
Ohio	571	207,919	118,838
Oklahoma	45	16,392	9,369
Oregon	7	2,588	1,479
Pennsylvania	220	79,947	45,694
Rhode Island	0	-	-
South Carolina	45	16,392	9,369
South Dakota	0	-	-
Tennessee	571	207,919	118,838
Texas	58	21,281	12,163
Utah	999	363,786	207,925
Vermont	7	2,588	1,479
Virginia	285	103,816	59,337
Washington	133	48,313	27,614
West Virginia	0	-	-
Wisconsin	4931	1,795,634	1,026,310
Wyoming	0	-	-
Total	14,361	5,229,598	2,989,021

Authors' calculations based on data from the following sources:

Census Bureau, 2008 County Business Patterns,
at <http://censtats.census.gov/cgi-bin/cbpnaic/cbpsel.pl>
the Annual Survey of Manufactures at
http://factfinder.census.gov/servlet/IBQTable?_bm=y&-ds_name=AM0931GS101

Table 4

2009 Economic Values for
Medical equipment and supplies manufacturing
by State

	Estimated Employment	Estimated value of shipments (in \$1,000)	Estimated value added (in \$1,000)
Alabama	3,135	457,388	261,198
Alaska	103	33,429	22,513
Arizona	4,517	982,966	916,581
Arkansas	2,603	343,356	211,161
California	54,285	15,313,561	12,167,261
Colorado	6,117	2,130,654	1,846,657
Connecticut	5,830	1,596,620	1,103,780
Delaware	1,230	328,810	231,076
District of Columbia	58	19,002	12,797
Florida	17,664	4,984,438	4,045,515
Georgia	5,861	1,342,917	868,249
Hawaii	287	93,602	63,037
Idaho	872	283,972	191,243
Illinois	7,920	1,312,047	879,597
Indiana	15,781	5,892,255	4,818,449
Iowa	1,515	256,335	165,589
Kansas	1,638	193,029	137,070
Kentucky	1,807	268,851	165,180
Louisiana	817	266,025	179,157
Maine	1,146	225,650	152,843
Maryland	1,504	431,056	262,118
Massachusetts	15,582	3,299,708	2,656,590
Michigan	7,202	1,858,171	1,501,577
Minnesota	16,035	4,244,118	3,069,977
Mississippi	1,374	142,118	132,023
Missouri	4,002	857,410	623,662
Montana	515	167,849	113,040
Nebraska	5,106	1,734,959	1,511,324
Nevada	682	222,040	149,535
New Hampshire	3,070	625,795	478,358
New Jersey	16,294	4,746,523	3,405,129
New Mexico	1,037	337,719	227,440
New York	14,650	2,765,156	2,029,270
North Carolina	6,486	2,227,732	1,530,579
North Dakota	225	73,192	49,292
Ohio	11,081	2,235,272	1,543,855
Oklahoma	1,060	218,929	117,778
Oregon	3,160	634,777	470,688
Pennsylvania	13,621	3,567,131	2,476,091
Rhode Island	1,649	512,325	428,993
South Carolina	3,250	1,214,576	878,298
South Dakota	738	240,338	161,858
Tennessee	8,433	2,490,349	1,912,997
Texas	13,679	3,912,367	3,047,894
Utah	6,058	1,499,089	1,190,974
Vermont	410	133,365	89,816
Virginia	3,708	607,759	409,263
Washington	4,084	573,677	382,468
West Virginia	1,005	327,298	220,422
Wisconsin	5,899	991,145	709,159
Wyoming	58	19,002	12,797
Total	304,843	79,235,852	60,232,217

Authors' calculations based on data from the following sources:

Census Bureau, 2009 Annual Survey of Manufactures, "Statistics for All Manufacturing by State," at http://factfinder.census.gov/servlet/IBQTable?_bm=y&-ds_name=AM0931AS101

Census Bureau, 2008 County Business Patterns, at <http://censtats.census.gov/cgi-bin/cbpnaic/cbpsel.pl>

the Annual Survey of Manufactures at http://factfinder.census.gov/servlet/IBQTable?_bm=y&-ds_name=AM0931GS101

Table 5

2009 Economic Values for
In Vitro Diagnostic Substance Manufacturing
by State

	Estimated Employment	Estimated value of shipments (in \$1,000)	Estimated value added (in \$1,000)
Alabama	-	-	-
Alaska	-	-	-
Arizona	-	-	-
Arkansas	48	15,229	14,791
California	7,823	2,470,783	2,399,774
Colorado	635	200,414	194,654
Connecticut	48	15,229	14,791
Delaware	1,418	447,780	434,911
District of Columbia	-	-	-
Florida	303	95,852	93,098
Georgia	607	191,833	186,319
Hawaii	-	-	-
Idaho	-	-	-
Illinois	485	153,065	148,666
Indiana	3,038	959,674	932,094
Iowa	101	31,864	30,948
Kansas	607	191,833	186,319
Kentucky	-	-	-
Louisiana	48	15,229	14,791
Maine	449	141,749	137,675
Maryland	2,198	694,154	674,204
Massachusetts	1,418	447,780	434,911
Michigan	168	53,007	51,484
Minnesota	303	95,852	93,098
Mississippi	-	-	-
Missouri	48	15,229	14,791
Montana	-	-	-
Nebraska	303	95,852	93,098
Nevada	8	2,431	2,362
New Hampshire	-	-	-
New Jersey	607	191,833	186,319
New Mexico	8	2,431	2,362
New York	1,953	616,728	599,003
North Carolina	1,164	367,774	357,204
North Dakota	-	-	-
Ohio	141	44,663	43,379
Oklahoma	-	-	-
Oregon	31	9,827	9,545
Pennsylvania	96	30,375	29,502
Rhode Island	48	15,229	14,791
South Carolina	48	15,229	14,791
South Dakota	-	-	-
Tennessee	-	-	-
Texas	303	95,852	93,098
Utah	8	2,431	2,362
Vermont	48	15,229	14,791
Virginia	303	95,852	93,098
Washington	281	88,742	86,192
West Virginia	-	-	-
Wisconsin	1,418	447,780	434,911
Wyoming	-	-	-
Total	26,516	8,374,814	8,134,126

Table 6

2009 Economic Values for
All Medical Device Manufacturing
by State

	Estimated Employment	Estimated value of shipments (in \$1,000)	Estimated value added (in \$1,000)
Alabama	3,376	545,703	321,171
Alaska	110	36,017	23,992
Arizona	6,812	1,823,335	1,507,512
Arkansas	2,662	362,560	228,749
California	76,834	23,173,345	18,278,478
Colorado	8,613	3,012,772	2,520,608
Connecticut	7,068	2,046,631	1,406,633
Delaware	2,780	824,903	693,601
District of Columbia	58	19,002	12,797
Florida	20,499	6,006,706	4,776,720
Georgia	6,548	1,563,722	1,074,611
Hawaii	355	118,178	80,329
Idaho	883	287,947	194,041
Illinois	10,843	2,355,546	1,597,466
Indiana	19,054	6,937,715	5,808,736
Iowa	2,037	442,526	305,120
Kansas	2,256	388,837	326,187
Kentucky	1,863	289,219	177,346
Louisiana	872	283,843	195,428
Maine	2,439	676,416	507,939
Maryland	4,242	1,322,967	1,075,120
Massachusetts	23,960	6,292,439	4,792,984
Michigan	7,988	2,137,558	1,710,174
Minnesota	24,825	7,447,258	5,347,159
Mississippi	1,381	144,706	133,502
Missouri	4,292	960,954	698,426
Montana	583	192,426	130,332
Nebraska	5,409	1,830,811	1,604,422
Nevada	841	279,651	184,342
New Hampshire	3,499	782,711	588,421
New Jersey	19,059	5,728,311	4,140,872
New Mexico	1,063	346,715	234,078
New York	19,102	4,296,473	3,253,466
North Carolina	7,725	2,622,671	1,906,554
North Dakota	225	73,192	49,292
Ohio	12,701	2,820,363	1,940,022
Oklahoma	1,172	259,898	144,439
Oregon	4,310	1,054,156	768,046
Pennsylvania	17,190	4,868,705	3,389,437
Rhode Island	2,119	681,882	552,367
South Carolina	4,187	1,555,215	1,119,879
South Dakota	934	312,261	212,462
Tennessee	9,179	2,762,239	2,076,845
Texas	15,976	4,738,252	3,651,824
Utah	9,638	2,807,538	2,064,203
Vermont	526	173,590	121,852
Virginia	4,444	861,279	599,587
Washington	8,131	2,041,133	1,432,327
West Virginia	1,005	327,298	220,422
Wisconsin	17,909	5,307,686	3,629,006
Wyoming	69	22,977	15,594
	0	0	0
Total	409,646	116,248,238	87,824,917

Authors' calculations based on data from Tables 2 -5.

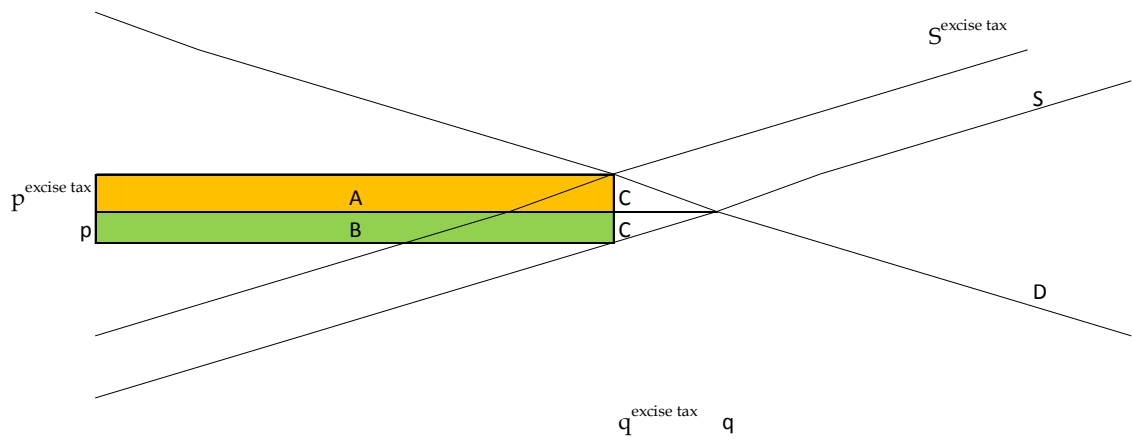


Figure 1: Effect of Excise tax on market for medical device manufactures

Table 7

Exports of Medical Devices*
 The First 11 months of 2010
 20 Top Export Destinations
 (in thousands of dollars)

Country Name	Exports
World	32,759,954
Japan	4,181,914
Netherlands	3,592,299
Canada	3,159,370
Germany	2,383,308
Mexico	1,918,483
Belgium	1,877,795
Australia	1,233,551
China	1,209,671
France	1,091,245
United Kingdom	1,037,586
Switzerland	837,640
Brazil	824,007
Korea	692,486
Italy	670,324
Sweden	657,387
Ireland	592,627
Luxembourg	542,366
Singapore	527,210
Spain	404,154
Hong Kong	380,852
Rest of world	4,945,679

Source: Census Bureau, U.S. International Trade
 Statistics,
 at http://censtats.census.gov/cgi-bin/naic3_6/naicMonth.pl.

* Table 7 does not include export data for *in vitro* diagnostic substances, dental laboratories, or irradiation apparatus manufacturing. Export information is not available for these industries.

Table 8

Imports of Medical Devices*
 The First 11 months of 2010
 20 Top Export Destinations
 (in thousands of dollars)

Country Name	Imports
World	30,094,313
Mexico	5,077,881
Ireland	4,543,687
China	3,680,430
Germany	2,806,717
Japan	1,735,342
Switzerland	1,629,063
Malaysia	1,152,965
United Kingdom	837,173
Italy	789,635
Costa Rica	777,662
Thailand	689,234
Dominican Republic	640,302
France	633,553
Australia	576,331
Denmark	514,167
Singapore	472,677
Canada	466,140
Taiwan	395,330
Israel	340,289
Korea	306,136
Rest of world	2,029,599

Source: Census Bureau, U.S. International Trade Statistics,
 at http://censtats.census.gov/cgi-bin/naic3_6/naicMonth.pl.

*Table 8 does not include import data for *in vitro* diagnostic substances, dental laboratories, or irradiation apparatus manufacturing. Import information is not available for these industries.)

Table 9

Effect of the 2.3% Excise Tax
on the American Medical Device Industry
Assuming no shift in production offshore

Elasticity of supply	Elasticity of demand	Net Change of Price after Tax	Net Change of Demand with Tax (\$billions)	Total Tax raised (\$billions)	Total Employment Lost	Total Labor Compensation Lost (\$millions)
0.5	0.5	1.2%	-0.67	2.65	-2,352	-\$192
0.5	1	0.8%	-0.89	2.65	-3,136	-\$256
0.5	2	0.5%	-1.07	2.64	-3,763	-\$307
0.5	5	0.2%	-1.21	2.64	-4,276	-\$349
1	0.5	1.5%	-0.89	2.65	-3,136	-\$256
1	1	1.2%	-1.33	2.64	-4,704	-\$384
1	2	0.8%	-1.78	2.63	-6,271	-\$511
1	5	0.4%	-2.22	2.62	-7,839	-\$639
5	0.5	2.1%	-1.21	2.64	-4,276	-\$349
5	1	1.9%	-2.22	2.62	-7,839	-\$639
5	2	1.6%	-3.81	2.58	-13,439	-\$1,096
5	5	1.2%	-6.67	2.51	-23,518	-\$1,918

Table 10

Effect of the 2.3% Excise Tax
on the American Medical Device Industry
Assuming some shift in production offshore

Shift of production offshore	Lost Employment Range		Lost Labor Compensation range (\$millions)	
			minimum	maximum
0%	2,352	23,518	192	1,918
1%	6,442	27,608	526	2,252
2%	10,532	31,698	859	2,585
5%	22,802	43,968	1,860	3,586
10%	43,252	64,418	3,527	5,253
15%	63,702	84,868	5,195	6,921
20%	84,152	105,318	6,863	8,589
25%	104,602	125,768	8,531	10,257
30%	125,052	146,218	10,198	11,924

Table 11

2009 Economic Values for
All Medical Device Manufacturing
by State with 2.3% Excise Tax*
and 10% shift in production offshore

	Estimated Employment Without Excise tax	Estimated Employment Loss With Excise tax	Estimated Employment Compensation Without Excise tax (\$Thousands)	Estimated Employment Compensation Loss With Excise tax (\$Thousands)
Alabama	3,376	-376	274,914	-30,643
Alaska	110	-12	8,936	-996
Arizona	6,812	-759	554,647	-61,824
Arkansas	2,662	-297	216,750	-24,160
California	76,834	-8,564	6,255,956	-697,323
Colorado	8,613	-960	701,306	-78,171
Connecticut	7,068	-788	575,457	-64,144
Delaware	2,780	-310	226,386	-25,234
District of Columbia	58	-7	4,751	-530
Florida	20,499	-2,285	1,669,064	-186,043
Georgia	6,548	-730	533,110	-59,423
Hawaii	355	-40	28,866	-3,218
Idaho	883	-98	71,881	-8,012
Illinois	10,843	-1,209	882,848	-98,407
Indiana	19,054	-2,124	1,551,406	-172,928
Iowa	2,037	-227	165,884	-18,490
Kansas	2,256	-251	183,706	-20,477
Kentucky	1,863	-208	151,678	-16,907
Louisiana	872	-97	71,014	-7,916
Maine	2,439	-272	198,564	-22,133
Maryland	4,242	-473	345,382	-38,498
Massachusetts	23,960	-2,671	1,950,868	-217,455
Michigan	7,988	-890	650,420	-72,499
Minnesota	24,825	-2,767	2,021,255	-225,300
Mississippi	1,381	-154	112,452	-12,535
Missouri	4,292	-478	349,433	-38,950
Montana	583	-65	47,429	-5,287
Nebraska	5,409	-603	440,448	-49,095
Nevada	841	-94	68,469	-7,632
New Hampshire	3,499	-390	284,859	-31,752
New Jersey	19,059	-2,124	1,551,848	-172,978
New Mexico	1,063	-118	86,524	-9,644
New York	19,102	-2,129	1,555,351	-173,368
North Carolina	7,725	-861	628,953	-70,107
North Dakota	225	-25	18,299	-2,040
Ohio	12,701	-1,416	1,034,171	-115,274
Oklahoma	1,172	-131	95,437	-10,638
Oregon	4,310	-480	350,896	-39,113
Pennsylvania	17,190	-1,916	1,399,633	-156,011
Rhode Island	2,119	-236	172,506	-19,228
South Carolina	4,187	-467	340,923	-38,001
South Dakota	934	-104	76,080	-8,480
Tennessee	9,179	-1,023	747,341	-83,303
Texas	15,976	-1,781	1,300,830	-144,998
Utah	9,638	-1,074	784,731	-87,470
Vermont	526	-59	42,830	-4,774
Virginia	4,444	-495	361,808	-40,329
Washington	8,131	-906	662,030	-73,794
West Virginia	1,005	-112	81,829	-9,121
Wisconsin	17,909	-1,996	1,458,206	-162,540
Wyoming	69	-8	5,635	-628
Total	409,646	-45,661	33,354,000	-3,717,821

Authors' calculations based on data from Tables 1, 5, 9, and 10,
and assumed elasticities of 1.0 for demand and supply.

Appendix A

Excise Tax on Medical Device Manufacturers

In the New Health Care Law

PL 111-152²⁰

SEC. 1405. EXCISE TAX ON MEDICAL DEVICE MANUFACTURERS.

(a) In General.--Chapter 32 of the Internal Revenue Code of 1986 is amended--

(1) by inserting after subchapter D the following new subchapter:

``Subchapter E--Medical Devices

``Sec. 4191. <<NOTE: 26 USC 4191.>> Medical devices.

``SEC. 4191. MEDICAL DEVICES.

``(a) In General.--There is hereby imposed on the sale of any taxable medical device by the manufacturer, producer, or importer a tax equal to 2.3 percent of the price for which so sold.

``(b) Taxable Medical Device.--For purposes of this section--

``(1) In general.-- <<NOTE: Definition.>> The term 'taxable medical device' means any device (as defined in section 201(h) of the Federal Food, Drug, and Cosmetic Act) intended for humans.

``(2) Exemptions.--Such term shall not include--

[[Page 124 STAT.1065]]

``(A) eyeglasses,

``(B) contact lenses,

``(C) hearing aids, and

``(D) any other medical device determined by the Secretary to be of a type which is generally purchased by the general public at retail for individual use.'',
and

(2) by inserting after the item relating to subchapter D in the table of subchapters for such chapter the following new item:

``subchapter e. medical devices''.

(b) Certain Exemptions Not to Apply.--

(1) Section 4221(a) of the Internal Revenue Code of 1986 is <<NOTE: 26 USC 4221.>> amended by adding at the end the following new sentence: ``In the case of the tax imposed by

²⁰ See http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_public_laws&docid=f:publ152.111.

section 4191, paragraphs (3), (4), (5), and (6) shall not apply.''.

(2) Section 6416(b)(2) of such Code <<NOTE: 26 USC 6416.>> is amended by adding at the end the following: ``In the case of the tax imposed by section 4191, subparagraphs (B), (C), (D), and (E) shall not apply.''.

(c) <<NOTE: 26 USC 4191 note.>> Effective Date.--The amendments made by this section shall apply to sales after December 31, 2012.

(d) Repeal of Section 9009 of the Patient Protection and Affordable Care Act.-- <<NOTE: Effective date.>> Section 9009 of the Patient Protection and Affordable Care Act, as amended by section 10904 of such Act, <<NOTE: Ante, p. 862, 1016.>> is repealed effective as of the date of enactment of that Act.

Appendix B

Federal Food, Drug, and Cosmetic Act

Section 201(h)²¹

(h) The term "device" (except when used in paragraph (n) of this section and in sections 301(i), 403(f), 502(c), and 602(c)) means an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent, or other similar or related article, including any component, part, or accessory, which is--

- (1) recognized in the official National Formulary, or the United States Pharmacopeia, or any supplement to them,
- (2) intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, in man or other animals, or
- (3) intended to affect the structure or any function of the body of man or other animals, and which does not achieve its primary intended purposes through chemical action within or on the body of man or other animals and which is not dependent upon being metabolized for the achievement of its primary intended purposes.

²¹ See

<http://www.fda.gov/RegulatoryInformation/Legislation/FederalFoodDrugandCosmeticActFDCAct/FDCActChaptersIandIIShortTitleandDefinitions/ucm086297.htm>.

Appendix C

2010 American Exports and Imports of Medical Devices

U.S International Trade Statistics														
Value of Exports and Imports														
Commodity Groupings														
In Thousands of Dollars.(-) represents zero														
Cumulative Year to Date Thru December 2010														
Source: Source: Census Bureau, U.S. International Trade Statistics, at http://censtats.census.gov/cgi-bin/naic3_6/naicMonth.pl .														
	Surgical and Medical Instruments		Surgical appliances and supplies		Dental equipment and supplies		Ophthalmic goods		Electromedical and electrotherapeutic apparatus		Total		Total	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports		
World	12,346,513	8,828,712	8,645,662	9,666,120	1,238,469	1,287,176	1,710,410	3,307,193	8,818,900	7,005,112			32,759,954	30,094,313
Afghanistan	555	-	6,298	-	18	-	160	-	803	-			7,834	-
Albania	70	-	248	-	55	-	-	-	645	-			1,018	-
Algeria	1,548	-	247	-	207	-	161	-	1,902	-			4,065	-
Andorra					9	-							9	-
Angola	5	-	866	-	13	-	62	-	107	-			1,053	-
Anguilla	82	-	60	-	176	-	96	-	177	16			591	16
Antigua And Barbuda	105	-	234	-	56	-	145	-	231	-			771	-
Argentina	40,045	640	41,058	254	4,193	365	8,993	12	63,005	481			157,294	1,752
Armenia	331	-	129	-	130	-	36	-	302	-			928	-
Aruba	1,506	5	1,251	-	38	-	1,879	-	841	5			5,515	10
Australia	491,016	18,552	336,512	397,698	40,119	5,641	40,623	370	325,281	154,070			1,233,551	576,331
Austria	21,801	10,860	15,326	86,682	1,943	26,968	3,711	33,303	34,255	59,123			77,036	216,936
Azerbaijan	184	-	41	-	71	-	-	-	1,374	-			1,670	-
Bahamas	1,769	3	1,305	10	103	-	1,027	-	1,866	5			6,070	18
Bahrain	1,616	-	1,637	-	280	-	293	-	1,692	-			5,518	-
Bangladesh	1,769	-	4,777	1,104	47	-	13	97	3,867	-			10,473	1,201
Barbados	3,105	104	964	5,291	231	-	1,833	65	1,187	-			7,320	5,460
Belarus	1,071	246	59	-	411	-	37	189	1,821	6			3,399	441
Belgium	1,017,135	9,539	432,533	6,587	14,424	158	2,446	1,424	411,257	3,483			1,877,795	21,191
Belize	477	-	157	8	119	6	111	-	169	-			1,033	14
Benin	40	-	194	-	5	-	-	-	133	-			372	-
Bermuda	2,104	3	8,258	-	487	7	346	-	2,185	12			13,380	22
Bhutan			71	-					40	-			111	-
Bolivia	1,287	4	1,666	-	376	-	497	-	2,992	-			6,818	4
Bosnia-hercegovina	386	32	31	-	9	-			1,146	-			1,572	32
Botswana	219	-	17	-					178	-			414	-
Brazil	327,054	24,963	176,913	84,227	14,234	5,993	32,954	609	272,852	946			824,007	116,738
British Indian Ocean Territory	160	-											160	-
British Virgin Islands	370	-	58	-	11	-	108	-	237	-			784	-
Brunei	86	-	371	-	20	-	138	-	224	-			839	-
Bulgaria	1,599	615	577	5	767	6	21	3	2,400	1,354			5,364	1,983
Burkina Faso	51	-	267	-			22	-					340	-
Burma	4	-	100	-					36	-			140	-
Burundi	10	-	53	-					3	-			66	-
Cambodia	50	-	136	20	74	-	19	-	408	-			687	20
Cameroon	173	49	214	1	-	3	-	25	57	17			444	95
Canada	1,103,922	91,750	872,014	146,604	255,457	40,323	384,803	6,323	543,174	181,140			3,159,370	466,140
Cape Verde			5	-					15	-			20	-
Cayman Islands	675	-	467	-	136	-	1,227	-	837	-			3,342	-
Central African Republic			69	-									69	-
Chad	6	-	19	-									25	-
Chile	43,723	34	32,624	11	9,592	-	9,771	-	42,011	92			137,721	137
China	402,256	490,067	250,944	1,193,475	21,623	83,117	17,905	1,232,680	516,943	681,091			1,209,671	3,680,430
Christmas Island	21	-	4	-									25	-
Cocos (keeling) Island									26	16			26	16
Colombia	72,375	429	65,034	2,782	12,102	2,920	22,515	104	94,534	124			266,560	6,359
Comoros									11	-			11	-
Congo	5	-	42	36	21	-	11	10	27	4			106	50
Costa Rica	97,110	463,503	25,634	163,029	5,136	4,622	6,216	78	75,968	146,430			210,064	777,662

U.S International Trade Statistics												
Value of Exports and Imports												
Commodity Groupings												
	Surgical and Medical		Surgical appliances and		Dental equipment and		Ophthalmic goods		Electromedical and		Total	Total
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
In Thousands of Dollars.(-) represents zero												
Cumulative Year to Date Thru December 2010												
Source: Source: Census Bureau, U.S. International Trade Statistics, at http://censtats.census.gov/cgi-bin/naic3_6/naicMonth.pl .												
Croatia	1,120	-	1,143	32	170	11	40	-	3,281	354	5,754	397
Cuba			146	-							146	-
Cyprus	1,922	-	533	-	329	-	48	18	2,493	-	5,325	18
Czech Republic	25,721	20,203	4,671	1,241	1,958	699	7,976	122	19,061	10,051	59,387	32,316
Denmark	178,594	76,474	48,223	134,713	3,255	4,388	1,011	3,001	79,414	295,591	310,497	514,167
Djibouti	13	-	46	-			15	-	298	-	372	-
Dominica	199	-	146	-	53	-	24	-	529	-	951	-
Dominican Republic	126,147	471,901	19,058	125,614	1,312	20	1,615	-	15,327	42,767	163,459	640,302
East Timor			59	-					28	-	87	-
Ecuador	13,368	12	9,330	4	2,697	142	5,523	-	19,922	-	50,840	158
Egypt	10,862	43	7,697	2,984	4,471	-	223	2	20,286	184	43,539	3,213
El Salvador	3,576	6	3,277	13	907	-	2,002	-	4,943	12	14,705	31
Equatorial Guinea	491	-	598	-	3	-	144	-	101	-	1,337	-
Eritrea	23	-			9	-					32	-
Estonia	611	3,500	836	1,614	543	-	566	54	2,223	558	4,779	5,726
Ethiopia	235	-	581	-	10	-			297	-	1,123	-
Falkland Islands			219	-			7	-			226	-
Faroe Islands			10	-					10	-	20	-
Federated States Of Micronesia			33	-	35	-			3	-	71	-
Fiji	16	-	140	-	21	-	46	-	79	-	302	-
Finland	13,236	6,680	5,052	46,534	2,842	1,201	1,986	3	22,942	45,434	46,058	99,852
France	440,609	352,412	184,935	154,402	41,410	20,692	21,893	53,329	402,398	52,718	1,091,245	633,553
French Guiana	59	-	4	-	35	-	220	-	217	-	535	-
French Polynesia	103	-	87	-	33	-	69	-	127	-	419	-
French Southern-antarctic Lands									39	-	39	-
Gabon	13	-	27	-					15	-	55	-
Gambia	7	-	6	-					25	-	38	-
Gaza Strip Admin By Israel	10	-	21	-	10	-			63	-	104	-
Georgia	165	70	533	56	192	-	26	-	1,342	40	2,258	166
Germany	752,100	944,760	562,137	420,562	169,243	355,297	96,620	26,472	803,208	1,059,626	2,383,308	2,806,717
Ghana	266	-	268	-	11	-	5	-	380	-	930	-
Gibraltar									10	-	10	-
Greece	25,255	78	12,012	545	7,723	78	609	-	26,974	156	72,573	857
Greenland	158	-	6	-			3	-			167	-
Grenada	248	-	84	-	25	-	81	-	265	-	703	-
Guadeloupe	86	-	9	-	-	7	98	-	477	3	670	10
Guatemala	27,984	1,908	4,659	11,714	1,853	-	2,841	-	5,676	-	43,013	13,622
Guinea	24	-	170	-							194	-
Guinea-bissau	3	-									3	-
Guyana	322	-	372	-	150	-	63	-	387	-	1,294	-
Haiti	3,748	-	2,279	-	12	-	81	-	711	-	6,831	-
Honduras	3,905	3	1,684	728	325	-	3,835	-	4,148	6	13,897	737
Hong Kong	135,088	1,961	90,307	7,217	16,505	1,922	33,112	18,916	105,840	12,862	380,852	42,878
Hungary	5,231	6,335	2,207	927	954	50	10,085	508	16,796	4,593	35,273	12,413
Iceland	904	228	2,976	35,543	142	16	13	-	575	159	4,610	35,946
India	100,170	22,226	79,036	6,792	7,324	1,232	26,600	4,897	154,937	69,299	368,067	104,446
Indonesia	4,047	17,968	6,027	95,080	391	-	4,263	99,160	9,721	20,749	24,449	232,957
Iran	2,109	-	2,311	-	1,146	-	381	-	9,728	-	15,675	-
Iraq	2,050	-	2,539	50	141	-	2,035	-	8,009	-	14,774	50
Ireland	204,240	653,542	263,821	2,548,827	1,539	60,505	50,363	252,119	72,664	1,028,694	592,627	4,543,687
Israel	63,740	81,825	26,693	32,269	14,140	16,335	5,392	13,568	54,036	196,292	164,001	340,289

U.S International Trade Statistics												
Value of Exports and Imports												
Commodity Groupings												
	Surgical and Medical		Surgical appliances and		Dental equipment and		Ophthalmic goods		Electromedical and		Total	Total
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
In Thousands of Dollars.(-) represents zero												
Cumulative Year to Date Thru December 2010												
Source: Source: Census Bureau, U.S. International Trade Statistics, at http://censtats.census.gov/cgi-bin/naic3_6/naicMonth.pl .												
Italy	264,393	76,432	91,217	42,285	58,348	31,044	43,906	587,919	212,460	51,955	670,324	789,635
Ivory Coast	99	-	506	21	12	-	4	-	96	-	717	21
Jamaica	2,381	-	5,331	24	406	-	1,611	3	1,961	-	11,690	27
Japan	1,466,996	420,489	1,480,998	115,585	84,307	171,816	240,115	203,404	909,498	824,048	4,181,914	1,735,342
Jordan	5,338	8	2,722	-	824	-	129	-	6,381	-	15,394	8
Kazakhstan	1,903	-	2,060	9	820	-	134	-	3,569	-	8,486	9
Kenya	1,257	17	990	-	320	83	27	-	1,360	8	3,954	108
Kiribati	-	-	-	334	-	-	-	-	-	-	-	334
Korea	235,911	47,336	171,048	46,937	38,318	20,812	45,992	62,925	201,217	128,126	692,486	306,136
Kosovo	-	-	16	-	-	-	-	-	-	-	16	-
Kuwait	7,850	-	8,091	-	3,338	-	346	19	11,542	-	31,167	19
Kyrgyzstan	8	-	187	-	61	-	9	-	242	-	507	-
Laos	407	-	29	-	-	-	8	-	4	-	448	-
Latvia	998	295	399	32	161	-	506	13	2,550	14	4,614	354
Lebanon	4,099	-	5,176	4	4,738	-	1,606	-	6,374	-	21,993	4
Lesotho	-	-	-	-	-	-	13	-	-	-	13	-
Liberia	-	-	412	-	-	-	-	3	-	-	412	3
Libya	1,782	-	1,120	5	490	-	38	-	2,717	-	6,147	5
Liechtenstein	118	55	-	-	696	17,305	-	-	147	8	961	17,368
Lithuania	515	178	1,307	1,584	1,451	-	451	-	1,226	491	4,950	2,253
Luxembourg	351,701	40	85,571	4	73	3	43	3,286	104,978	-	542,366	3,333
Macao	421	20	501	561	26	-	302	316	212	27	1,462	924
Macedonia	151	54	221	52	13	-	-	-	783	-	1,168	106
Madagascar	-	-	183	-	-	-	-	-	7	-	190	-
Malawi	22	-	198	-	-	-	-	-	41	-	261	-
Malaysia	47,835	75,523	23,614	934,173	2,203	188	4,392	53,246	41,719	89,835	119,763	1,152,965
Maldives	-	-	-	-	-	-	-	-	-	-	-	-
Maldives Islands	58	-	76	-	-	-	22	-	10	-	166	-
Mali	6	-	163	-	-	-	-	-	179	4	348	4
Malta And Gozo	3,294	1,000	315	-	39	-	10	-	755	-	4,413	1,000
Marshall Islands	3	-	125	-	30	-	-	-	23	-	181	-
Martinique	336	-	19	-	16	-	6	-	309	-	686	-
Mauritania	-	-	-	-	-	-	-	-	10	-	10	-
Mauritius	336	-	665	84	8	-	581	3,595	298	98	1,888	3,777
Mayotte	-	-	-	-	3	-	23	-	16	-	42	-
Mexico	1,100,273	2,961,850	372,235	885,784	41,767	72,812	114,524	206,216	289,684	951,219	1,918,483	5,077,881
Moldova	38	-	38	-	37	-	33	-	288	-	434	-
Monaco	20	-	-	-	137	-	153	-	332	-	642	-
Mongolia	157	-	28	-	13	-	4	-	40	-	242	-
Montenegro	3	225	43	-	-	-	-	-	-	-	46	225
Montserrat	14	-	36	-	26	-	-	-	-	-	76	-
Morocco	2,564	86	1,104	2	1,357	-	247	-	3,992	712	9,264	800
Mozambique	183	-	86	-	-	-	-	-	138	-	407	-
Namibia	64	-	64	-	-	-	-	-	7	-	135	-
Nauru	-	-	-	3	-	-	-	-	-	-	-	3
Nepal	227	-	574	5	4	-	-	-	559	-	1,364	5

U.S International Trade Statistics												
Value of Exports and Imports												
Commodity Groupings												
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Cumulative Year to Date Thru December 2010												
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	Surgical and Medical		Surgical appliances and		Dental equipment and		Ophthalmic goods		Electromedical and		Total	Total
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Netherlands												
Antilles	3,079	5	1,126	-	137	-	2,646	-	3,742	13	10,730	18
Netherlands	1,432,067	22,827	1,262,888	53,362	40,907	4,146	71,765	3,395	784,672	148,520	3,592,299	232,250
New												
Caledonia	105	-	22,198	-	113	-	43	18	68	-	22,527	18
New Zealand	27,283	8,560	25,829	96,275	5,263	2,189	1,605	5	28,676	317	88,656	107,346
Nicaragua	3,503	474	2,675	405	371	-	1,262	-	2,703	-	10,514	879
Niger	16	-	-	52	-	-	8	-	115	-	139	52
Nigeria	1,308	-	2,020	-	162	-	47	-	1,835	13	5,372	13
Norway	15,040	5,210	6,713	1,848	1,818	273	1,483	21	30,042	32,731	55,096	40,083
Oman	1,494	3	1,800	-	252	-	27	-	2,875	-	6,448	3
Pakistan	6,657	44,783	7,535	1,287	652	2,831	85	-	10,692	414	25,621	49,315
Palau	36	-	-	-	68	-	-	-	-	-	104	-
Panama	22,658	14	10,658	998	2,084	-	7,608	3	15,917	35	58,925	1,050
Papua New												
Guinea	22	-	33	-	17	-	22	-	9	-	103	-
Paraguay	2,310	-	3,782	32	648	-	3,456	-	3,731	-	13,927	32
Peru	16,668	162	16,578	31	2,870	2	4,356	-	21,509	-	61,981	195
Philippines	12,498	21,447	9,158	12,970	1,260	5,325	4,040	38,367	46,427	1,663	73,383	79,772
Poland	24,914	42,270	14,198	29,862	20,304	404	4,941	6	51,003	3,372	115,360	75,914
Portugal	9,523	104	3,980	458	2,590	-	3,417	-	14,272	15	33,782	577
Qatar	4,548	-	3,661	1	487	-	166	-	5,325	-	14,187	1
Republic Of												
South Africa	61,474	451	37,118	6,419	6,246	865	4,803	14	43,399	79	153,040	7,828
Republic Of												
Yemen	653	-	358	-	217	-	40	-	730	-	1,998	-
Reunion	24	-	-	-	51	-	-	-	19	-	94	-
Romania	2,077	268	1,478	52	1,198	-	35	2	5,682	10,504	10,470	10,826
Russia	23,419	1,768	26,035	823	14,468	20	15,113	6	62,988	1,513	142,023	4,130
Rwanda	1,080	-	79	-	3	-	-	-	175	-	1,337	-
San Marino												
Saudi Arabia	71,951	3	38,324	169	11,920	4	15,035	-	68,755	34	205,985	210
Senegal	91	-	175	-	-	-	41	-	253	-	560	-
Serbia	460	5	569	6	402	86	54	-	1,822	6	3,307	103
Seychelles	376	3,180	112	-	-	-	-	-	-	42	488	3,222
Sierra Leone	26	-	578	5	-	-	27	-	-	6	604	5
Singapore	131,257	152,718	89,292	89,985	6,372	123	90,335	1,855	209,954	227,996	527,210	472,677
Slovakia	2,082	64	2,426	693	432	-	88	6	4,490	84	9,518	847
Slovenia	4,860	2,435	1,404	24	158	57	3,090	3,288	4,499	1,418	14,011	7,222
Solomon												
Islands	44	-	-	-	-	-	-	-	-	-	44	-
Spain	151,415	7,255	83,169	9,091	33,328	5,378	6,265	1,107	129,977	488	404,154	23,319
Sri Lanka	2,735	50	1,266	31,244	124	-	38	-	2,055	34	6,218	31,328
St Helena												
St Kitts And												
Nevis	68	-	64	-	32	-	86	-	74	-	324	-
St Lucia	272	-	157	-	48	-	176	-	416	-	1,069	-
St Vincent												
And The												
Grenadines	101	-	30	-	10	-	48	-	774	-	963	-
Sudan												
			140	-	-	-	32	-	60	-	232	-
Suriname	2,395	-	424	-	206	-	297	-	483	-	3,805	-
Swaziland	345	32	3	-	-	-	56	-	106	-	510	32
Sweden	36,358	63,721	197,991	89,376	12,120	65,752	1,584	201	409,334	60,266	657,387	279,316

U.S International Trade Statistics												
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Commodity Groupings												
	Surgical and Medical		Surgical appliances and		Dental equipment and		Ophthalmic goods		Electromedical and		Total	Total
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Switzerland	296,263	767,539	377,488	485,095	58,113	184,759	6,070	3,676	99,706	187,994	837,640	1,629,063
Syrian Arab Republic	1,916	8	550	-	244	-	-	-	2,540	-	5,250	8
Taiwan	84,195	71,339	61,830	118,978	12,791	13,174	11,390	159,874	66,434	31,965	236,640	395,330
Tajikistan	3	-	5	-	-	-	16	22	-	-	24	22
Tanzania	785	-	397	-	363	-	7	-	148	-	1,700	-
Thailand	31,114	59,558	31,872	504,353	8,632	403	31,362	73,283	46,821	51,637	149,801	689,234
Togo	-	-	154	-	-	-	-	-	15	-	169	-
Tokelau Islands	202	102	114	-	9	-	-	-	26	-	351	102
Tonga	91	-	36	-	-	-	-	-	56	-	183	-
Trinidad And Tobago	3,861	-	5,115	8	435	1,701	2,720	-	3,798	3	15,929	1,712
Tunisia	2,735	7	1,278	12	585	-	2,045	89	2,905	-	9,548	108
Turkey	40,151	1,528	29,718	564	11,449	334	1,721	2	67,431	194	150,470	2,622
Togo	-	-	19	-	-	-	14	-	5	-	38	-
Turks And Caicos Islands	1,005	-	315	-	78	-	215	-	611	-	2,224	-
Tuvalu	-	-	109	-	-	-	-	-	-	-	109	-
Uganda	114	-	145	-	48	-	51	-	434	-	792	-
Ukraine	1,498	71	1,261	249	1,381	-	443	9	7,923	-	12,506	329
United Arab Emirates	24,284	1,338	27,648	13	8,655	114	9,812	-	35,472	429	105,871	1,894
United Kingdom	332,269	181,706	264,556	365,103	39,985	48,922	112,352	152,348	288,424	89,094	1,037,586	837,173
Uruguay	16,459	217	4,604	7	531	-	3,108	15	10,232	691	34,934	930
Uzbekistan	71	-	259	-	50	-	-	-	851	-	1,231	-
Vanuatu	290	-	6	-	-	-	-	-	25	-	321	-
Venezuela	135,399	13	66,491	3	16,505	-	11,213	-	116,669	62	346,277	78
Vietnam	7,616	10,335	11,382	23,494	6,585	3,525	320	1,178	15,020	37,987	40,923	76,519
West Bank Admin By Israel	-	-	-	-	-	-	-	-	3	-	3	-
Zaire	206	-	46	-	3	-	-	-	57	-	312	-
Zambia	237	-	206	-	3	-	-	-	42	-	488	-
Zimbabwe	40	-	68	-	36	-	-	-	639	-	783	-