

Indiana's Global Exports Report for 2009

A Report for the
INDIANA ECONOMIC DEVELOPMENT CORPORATION

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KELLEY SCHOOL OF BUSINESS

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Indiana Business Research Center



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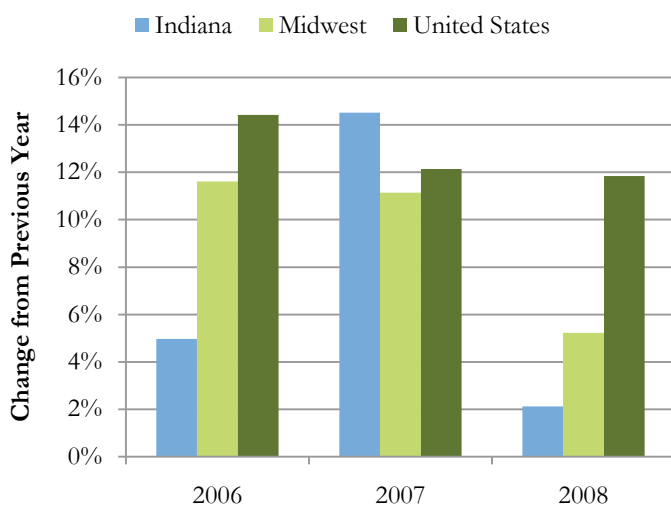
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Executive Summary

While 2007 was a great year for exports, 2008 was more challenging. Indiana exported \$26.5 billion in goods in 2008, an increase of only 2.1 percent over the 2007 total. While still positive, the growth in Indiana's exports constitutes a significant slowdown from 2007's growth rate of 14.5 percent. It also pales in comparison to the 11.8 percent growth in U.S. exports for 2008.

Indiana has not seen much consistency in the rate of change in its export sales over the last few years. In 2006, the state's foreign sales grew more slowly than those of the Midwest and the nation, but in 2007 Indiana outpaced both regions. 2008 saw a reversal once again. **Figure 1** shows the uneven growth in the state's exports compared to these two broader regions since 2006. Indiana's rank among all states in terms of export sales fell with its anemic 2008 growth. After rising from 12th in 2006 to 11th in 2007, Indiana dropped to 15th in 2008.

Figure 1: Annual Increase in Exports for Indiana, Midwest and United States



Source: WISER Trade

The Midwest, which consists of Indiana, Illinois, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio, Tennessee and Wisconsin, saw growth in its exports slow considerably, from 11.1 percent in 2007 to 5.2 percent in 2008. Much of this can be attributed to the \$5.7 billion (or 9.9 percent) drop in exports of vehicles and parts, a manufacturing staple of the Midwest.

Though Canada, Mexico and the United Kingdom generate a majority of the demand for Indiana's exports, growth of late has derived from emerging economies, specifically Brazil and China. Brazil has experienced the largest percentage increase in imports from Indiana of any country two years in a row—75.2 percent in 2007 and 24.4 percent in 2008. Germany, Indiana's top foreign purchaser of pharmaceutical products, has seen its share of Indiana's exports increase with the growth of that industry, and now accounts for almost 5 percent of Indiana's foreign sales. Canada, still Indiana's top export destination, reduced its purchases of Indiana products in 2008 by 2.6 percent, and its percentage share of Indiana exports has been on a steady slide since

2002. Canada used to account for over half of Indiana's export sales, but it now accounts for only 39.6 percent.

Vehicles and parts has remained Indiana's top exporting industry despite plummeting 12.8 percent in sales from 2007 to 2008. Industrial machinery is still ranked second, and has grown to within \$300 million of replacing vehicles and parts for the top spot. The third-ranked pharmaceutical products industry is the one to watch, however, with average annual growth of 24.0 percent between 2001 and 2008. The industry's rapid growth has launched it up the ladder of Indiana exports, from being ranked fifth in 2005 to fourth in 2006, and second in 2007. Optical and medical instruments exports ranked fifth in 2008, up from sixth in 2007, and have grown an average of 10.1 percent annually over the past seven years.

As the global economy cooled in late 2008, so did U.S. and Indiana exports. Recent trends for both the United States and Indiana are not encouraging. Since the summer 2008 peak, exports for the first quarter of 2009 have dropped about 30 percent for the nation and about 25 percent for Indiana. Indiana's leading export category, vehicles and parts, has been particularly hard hit, falling about 49 percent in the first quarter of 2009 from the summer 2008 peak. The U.S. drop in this category is similarly stark (about 46 percent). There are growth opportunities, however, in products like optical and medical instruments and pharmaceuticals—which grew about 35 percent over the same period—and in emerging markets like Brazil and China.

Trade Outlook

Introduction

One key component of Indiana's future prosperity is its integration with the global economy. Exports are fundamental to this integration. This report, prepared annually for the Indiana Economic Development Corporation, tracks the industry mix and the destinations of Indiana's exports to aid in understanding the importance of exports as sources of employment and economic growth in Indiana. It also examines whether there are discernable trends for future export growth in the global marketplace.

The report is structured as follows: This section highlights global economic growth and attempts to assess whether conditions are favorable for Indiana's exporters. Section II discusses recent state and national export trends. Section III surveys Indiana's export destinations. Section IV examines the state's principle export industries. The majority of data for this report come from WISER Trade and unless otherwise stated, WISER Trade is the source. Other sources used are attributed beneath the appropriate graphics.

Trade Outlook

World economic growth slowed in 2008, as crises in the housing market and the global financial system gripped the world. U.S. exports slowed from a growth rate of 12.1 percent between 2006 and 2007 to 11.8 percent between 2007 and 2008. While Indiana's export growth was well above the national trend in 2007, Indiana's exports faltered in 2008, increasing only 2.1 percent, a substantial deceleration when compared to the previous year's robust increase of 14.5 percent. The value of the state's exports in 2008 exceeded the 2007 total by \$550 million—far below the increase of \$3.2 billion that occurred between 2006 and 2007.

Table 1 presents the Organization for Economic Cooperation and Development's economic growth forecasts for Indiana's leading export destinations.¹ The International Monetary Fund predicts world output will decline 1.3 percent in 2009, returning to growth in 2010, but only by 1.9 percent. The IMF forecast for advanced economies—Indiana's primary trading partners—is that they will contract by 3.8 percent in 2009 and will not grow in 2010.

Table 1: Real GDP, Actual 2008 and Forecast 2009 and 2010

Nation	Percentage Change from Previous Year		
	2008	2009	2010
Australia	2.5	1.7	2.7
Brazil*	5.1	-0.8	4.0
Canada	0.5	-0.5	2.1
China*	9.0	7.7	9.3
France	0.9	-0.4	1.5
Germany	1.4	-0.8	1.2

¹ The OECD forecasts growth for member countries and also for other large economies, such as China and Brazil.

Nation	Percentage Change from Previous Year		
	2008	2009	2010
Japan	0.5	-0.1	0.6
Korea	4.2	2.7	4.2
Mexico	1.9	0.4	1.8
Netherlands	2.2	-0.2	0.8
United Kingdom	0.8	-1.1	0.9
United States	1.4	-0.9	1.6
Euro area	1.0	-0.6	1.2

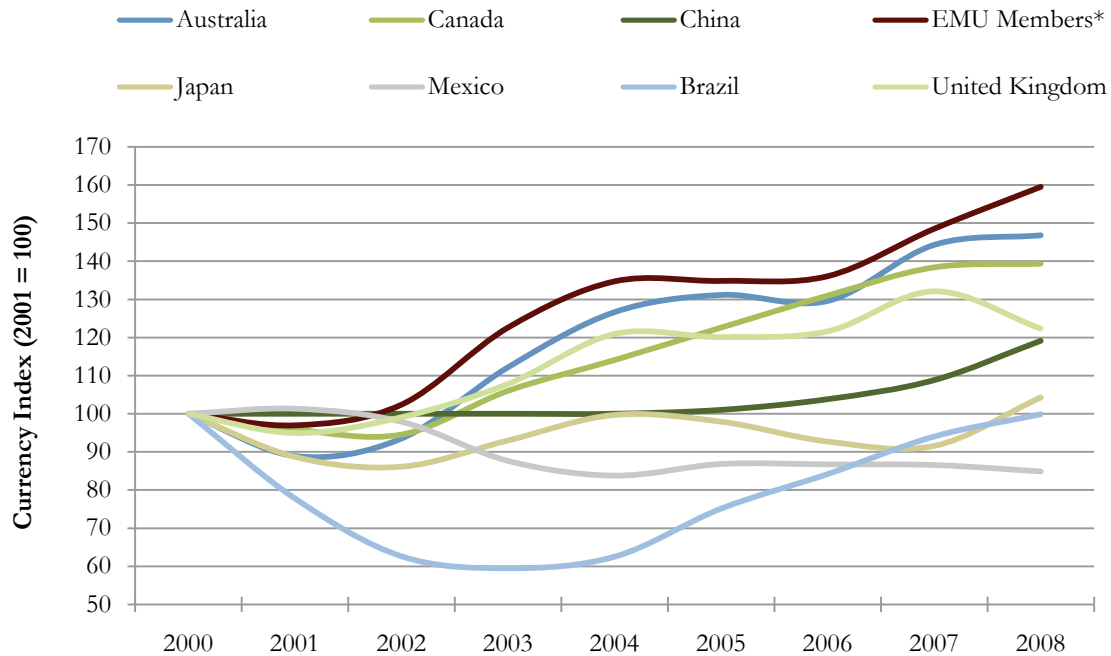
*Non-member growth estimates are from OECD

Source: Organization for Economic Cooperation and Development

The shrinking economic output of Indiana's principal trading partners is the primary explanation for slowing growth in purchases of Indiana's exports worldwide. Indiana exports peaked during the three-month period of June through August in 2008. Compared to that peak, Indiana exports in the first quarter of 2009 dropped by about 25 percent.

The current foreign exchange environment, however, is favorable for continuing strength in exports. Except for Mexico and Brazil, U.S. trading partners have seen their cost of foreign exchange in U.S. dollars increase since 2000. In contrast to 2007, the Japanese yen appreciated considerably against the dollar in 2008, as did the Chinese currency, as **Figure 2** shows.

Figure 2: Foreign Exchange Trends for Indiana's Top Trading Partners, 2000-2008

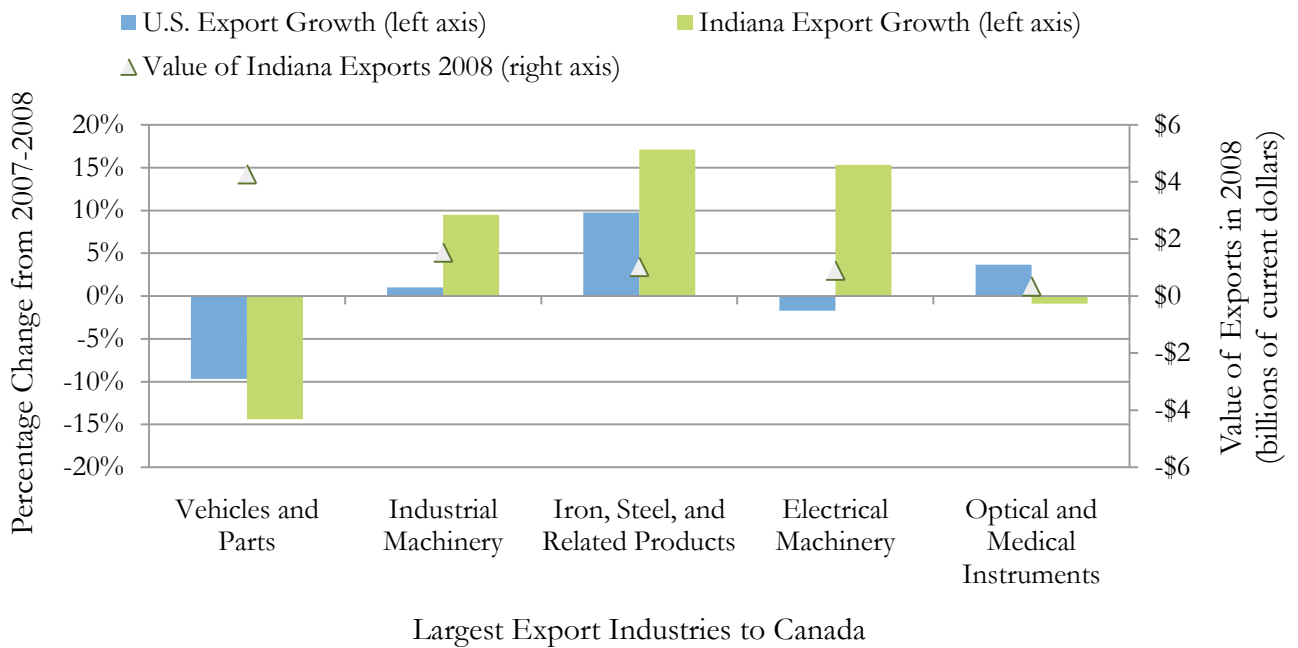


*European Monetary Union
Source: Federal Reserve

Perhaps related to the U.S. dollar's stabilization vis-à-vis the Canadian dollar, Indiana's exports to Canada—the state's largest export market—dropped by 2.6 percent from 2007 to 2008. This contrasts sharply with the 9.2 percent growth in Indiana's exports to Canada a year earlier. Vehicle exports drove the increase from 2006 to 2007, as well as the more recent decline—decreasing by 14.4 percent from 2007 to 2008. Industrial machinery exports from Indiana to Canada continued to grow, and electrical machinery exports bounced back after a disappointing year in 2007, increasing 15.3 percent in 2008.

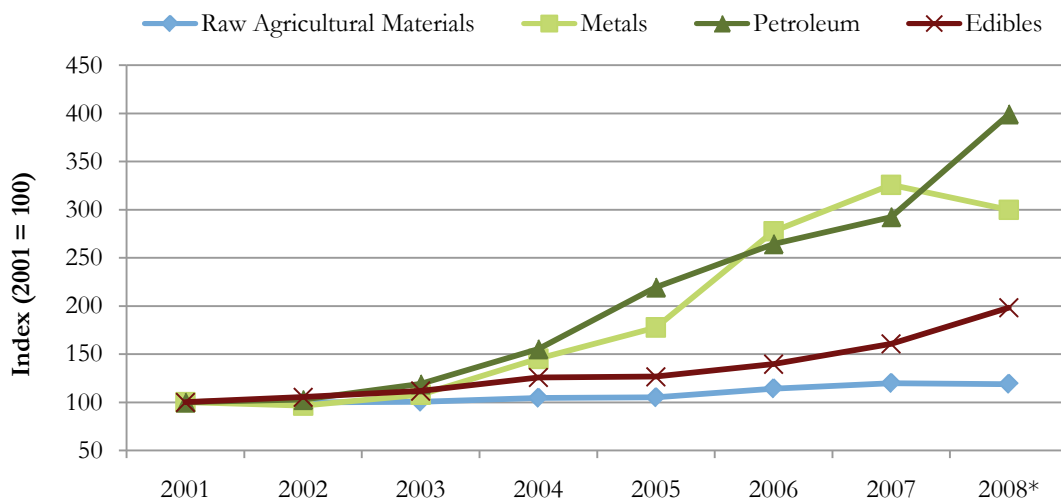
Figure 3 shows the change in the top five export categories from the United States and Indiana to Canada from 2007 to 2008. The largest decline came in vehicles and parts, which nonetheless maintained the highest dollar value, as shown by the triangles on the graph. Exports of iron, steel and related products saw the largest percentage increase, both in Indiana and the United States. Indiana's exports of iron, steel and related products to Canada increased more than 17 percent, almost double the rate of increase for the nation as a whole.

Figure 3: Comparing U.S. and Indiana Exports to Canada by Industry, 2008



What the weakening dollar gives by way of encouraging export sales, it takes away in the form of rising commodity prices. A weak dollar increases the prices of raw materials that range from crude to copper to corn. **Figure 4** shows the trends in commodity prices since 2001. Metal prices increased in 2007 but decreased in 2008 by 8.0 percent, likely reflecting reduced demand from the slowing global economy. Conversely, petroleum and edibles prices jumped in 2008, the worldwide slowdown notwithstanding. Edibles increased 23.3 percent, and petroleum leapt 36.5 percent.

Figure 4: World Primary Commodity Prices

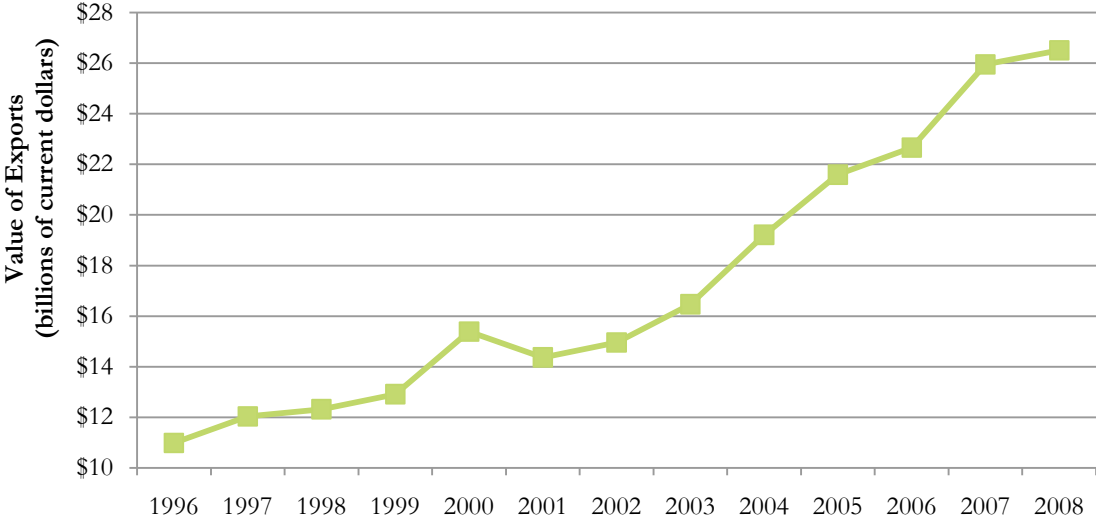


*Provisional
Source: International Monetary Fund

Indiana Exports in 2007

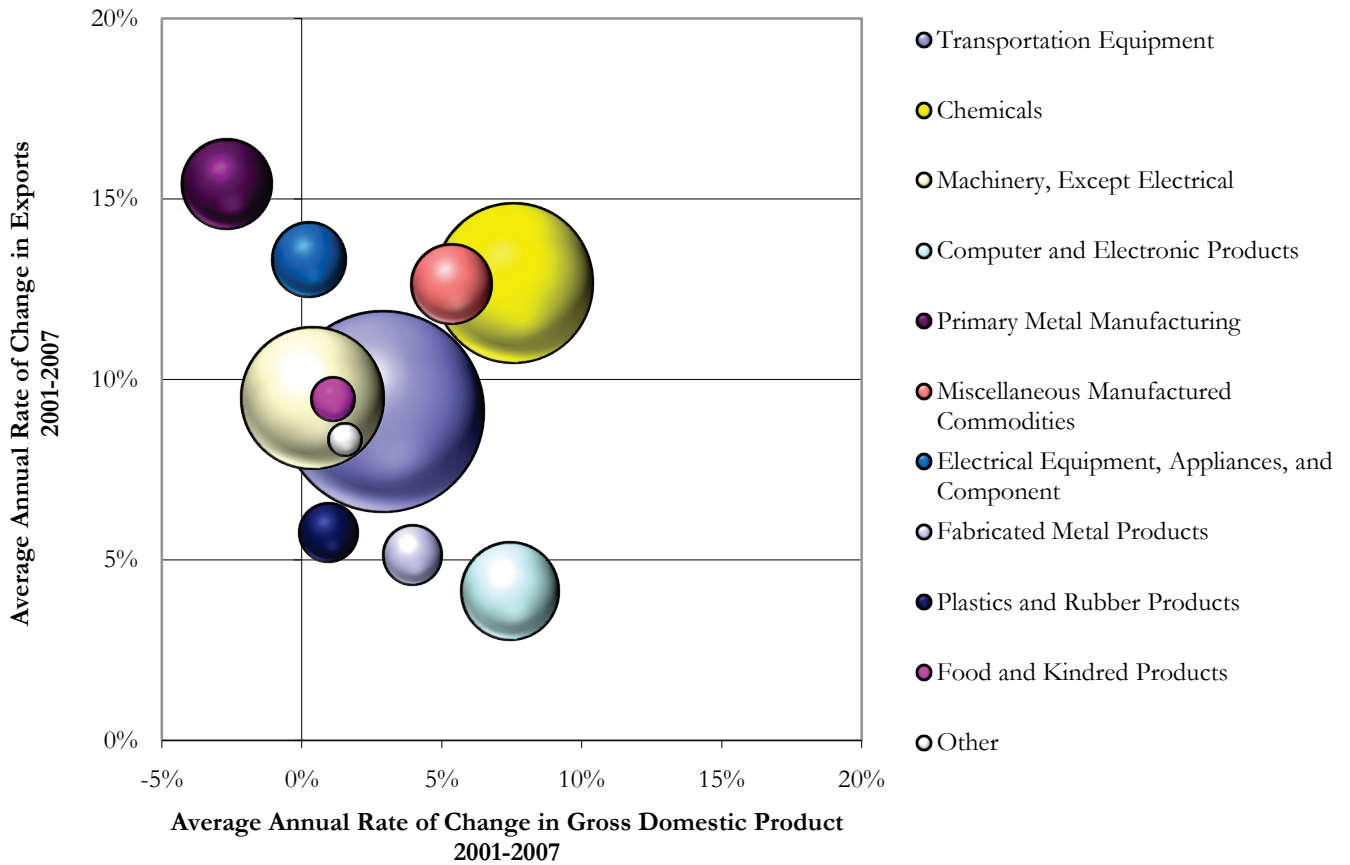
As **Figure 5** shows, Indiana exports have been on a steady growth trend from 1996 to 2008, with the relative weakness in 2001 and 2002 attributed to the economic slowdown in most advanced countries. Indiana exports rose from \$11.0 billion to \$26.5 billion in this period.

Figure 5: Indiana Exports, 1996-2008



After vibrant growth from 2006 to 2007, the rate of increase for Indiana exports from 2007 to 2008 slowed considerably. Exports rose only 2.1 percent from 2007 to 2008, compared to 14.5 percent growth from 2006 to 2007. As shown in **Figure 6**, export growth in almost all industries continues to outpace GDP growth for those industries. The chart shows an interesting inverse relationship between the two growth rates. That is, several industries with the lowest average annualized rate of GDP growth from 2001 to 2007 seem to be the industries benefitting from the highest average growth in exports and vice versa. The unsurprising exception is the chemicals industry.

Figure 6: Comparing Indiana's Growth in Exports and GDP by Industry, 2001-2007

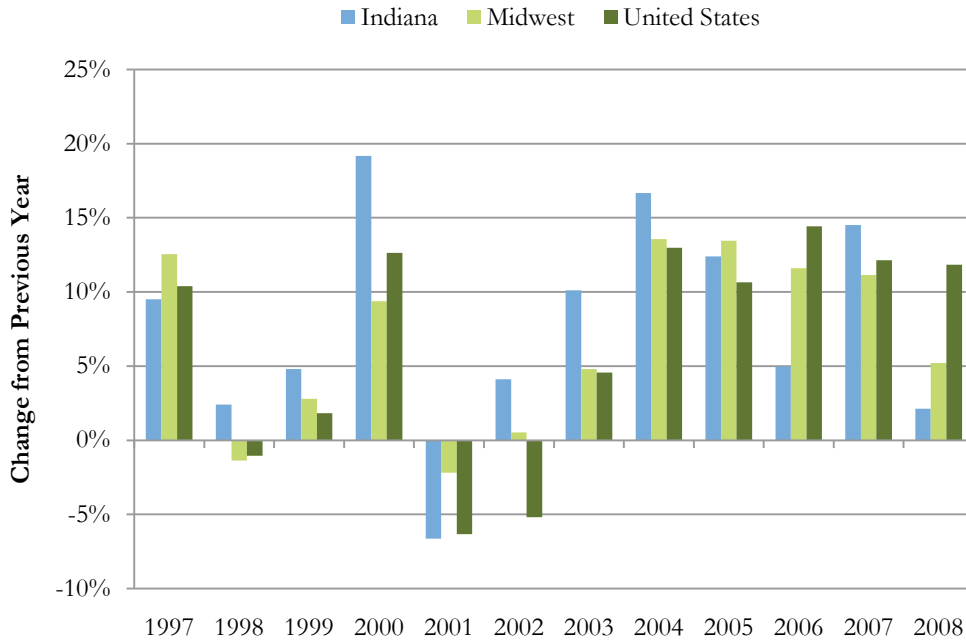


Note: Industry classifications based on NAICS industry codes. WISER Trade data based on the Harmonized System for Commodities

Sources: WISER Trade (exports) and the Bureau of Economic Analysis (gross domestic product)

Figure 7 shows annual change in exports for Indiana, the Midwestern states and the United States from 1997 to 2008. Indiana exports recovered from the 2001 recession more quickly than did those of its Midwestern neighbors and of the nation as a whole. In 2008, however, the worldwide recession took a greater toll on Indiana than it did on either the Midwest or the United States as a whole in terms of lower exports.

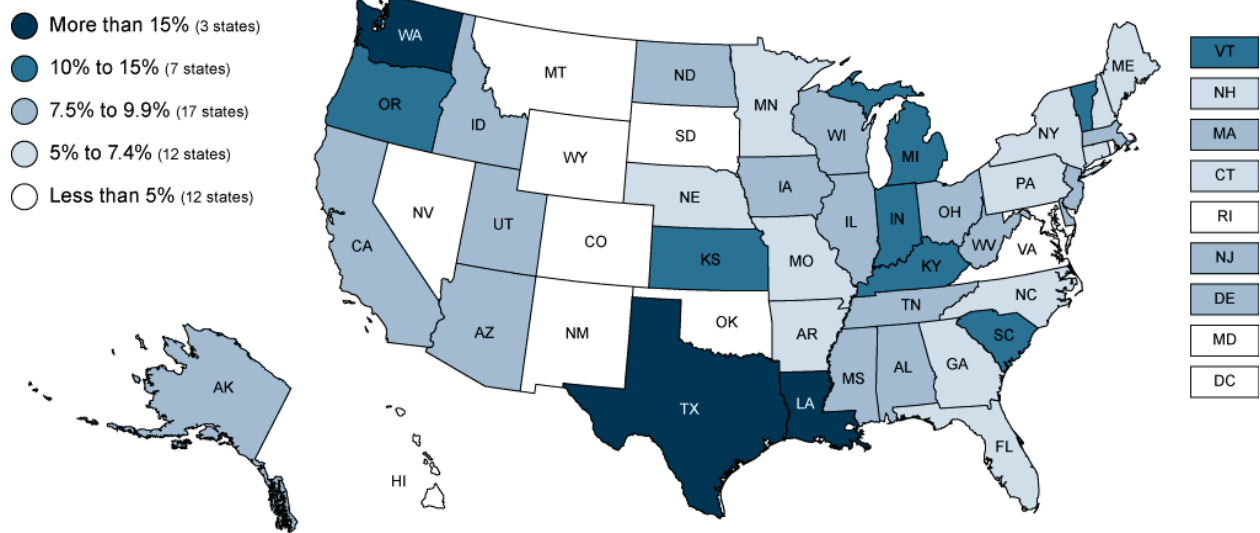
Figure 7: Annual Change in Indiana, Midwestern and U.S. Exports



The deceleration in Indiana’s export sales from 2007 to 2008 did little to diminish the export share of Indiana’s GDP. After ranking eighth in 2007, Indiana fell only one place to ninth in the nation in terms of the ratio of exports to GDP in 2008. In fact, the state’s ratio in 2008 of 10.4 percent is only a tenth of a percentage point drop from the 2007 ratio. This means that GDP and export sales grew at nearly the same rate between 2007 and 2008.

While GDP—the sum of all value-added components, such as wages and profits—is not conceptually the same as sales (because sales includes the price of intermediate inputs as well as value added), the ratio can provide a rough measure of the relative dependence a state has on exports. **Figure 8** shows how Indiana’s exports-to-GDP ratio compares with the rest of the country.

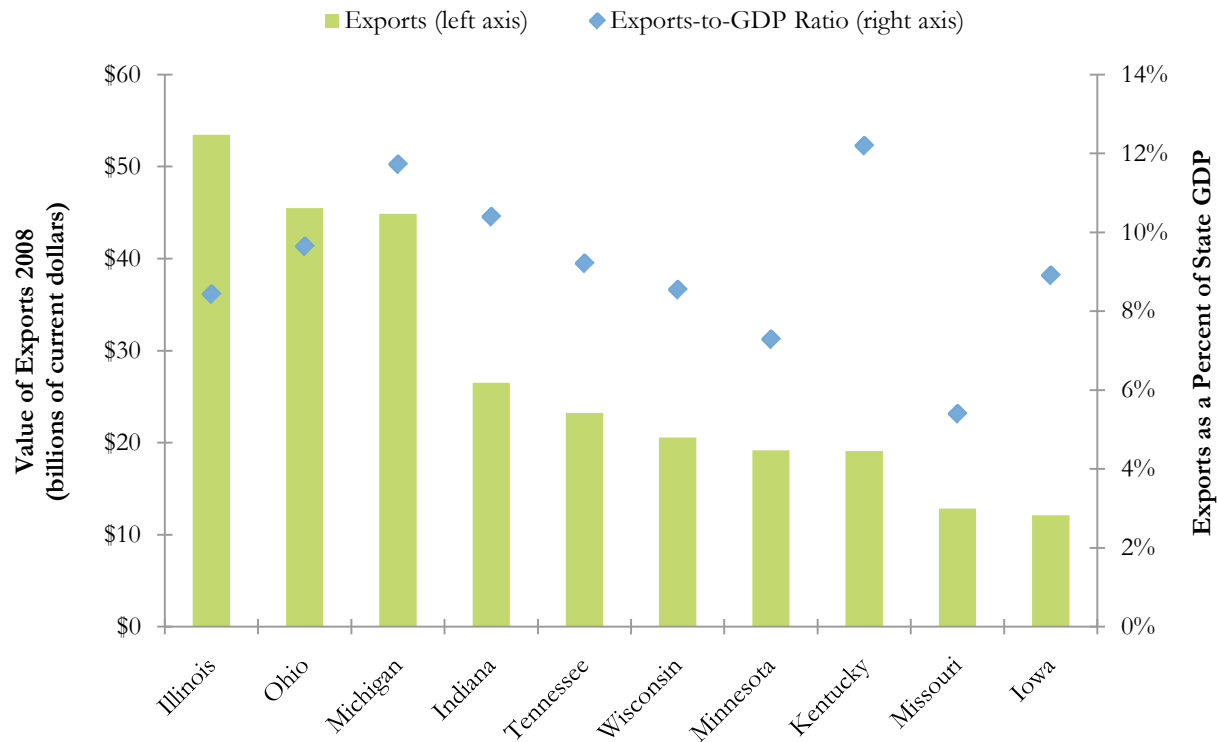
Figure 8: State Export Dependency—Export Sales to GDP, 2008



Sources: WISER Trade (exports) and the Bureau of Economic Analysis (gross domestic product)

Figure 9 compares Indiana’s 2008 export sales and the exports-to-GDP ratio with the other Midwestern states. In terms of export sales dollars, Indiana falls into the upper half. Four Midwestern states (Michigan, Illinois, Ohio and Minnesota) had higher levels of GDP than Indiana and, with the exception of Minnesota, greater export dollar volume as well. As in 2007, only Michigan and Kentucky were more export dependent in 2008 than Indiana, using exports-to-GDP as a measure for export reliance. **Figure 10** shows how the states, including Washington, D.C., compare regarding the dollar value of export sales. In 2008, Indiana ranked 14th.

Figure 9: Midwestern States Total Exports and Export-to-GDP Ratio, 2008



Sources: WISER Trade (exports) and the Bureau of Economic Analysis (gross domestic product)

Figure 10: Value of Exports by State in Current Dollars, 2008

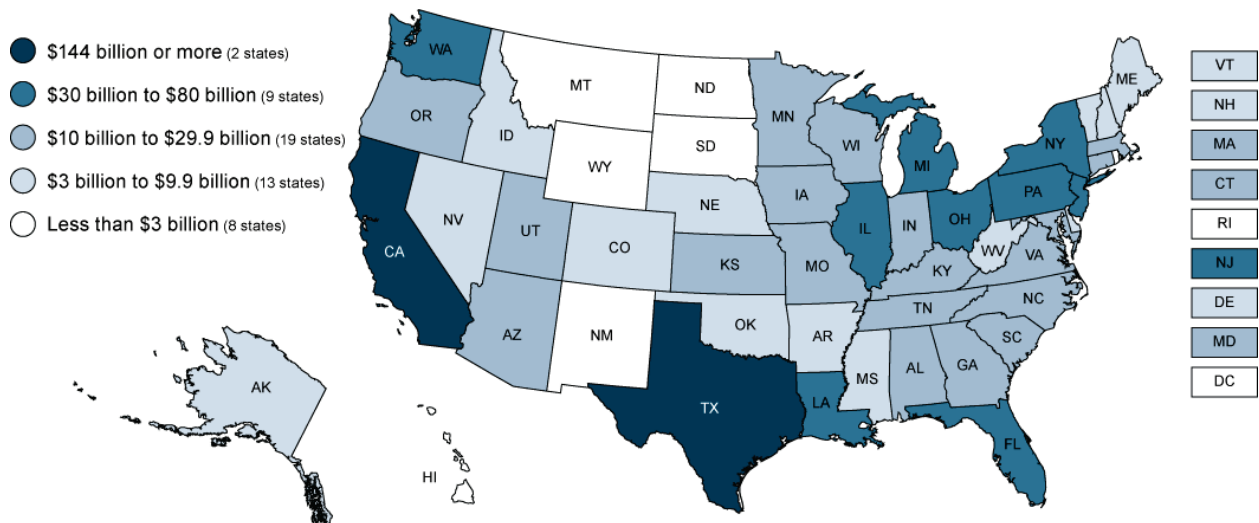
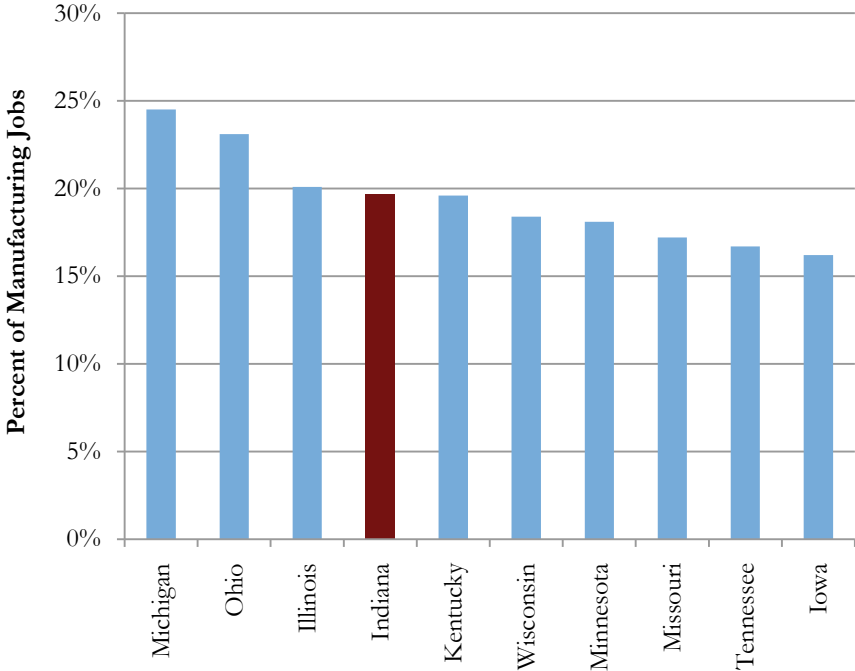


Figure 11 shows the percentage of manufacturing employment that is dependent upon exports in Indiana and the Midwest. In 2006, the most recent year for which reliable data are available, Indiana ranked fourth among the 10 Midwestern states in export-oriented manufacturing employment.

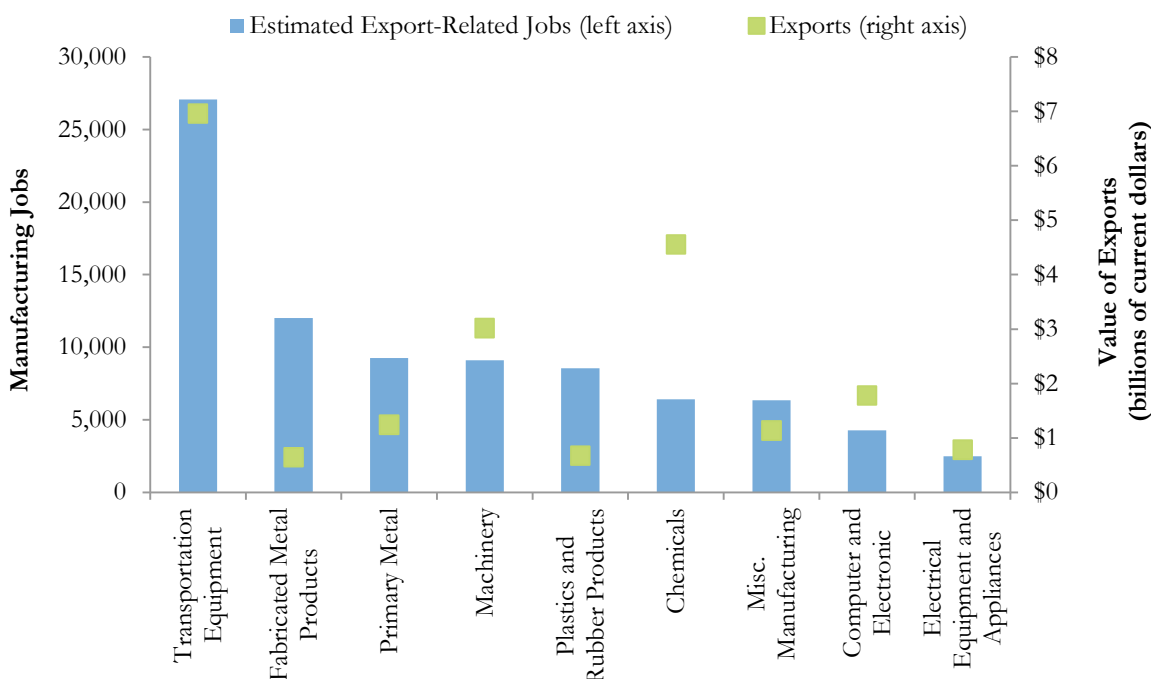
Figure 11: Manufacturing Employment Devoted to Exports, 2006



Source: U.S. Census Bureau

Figure 12 provides greater industry detail for Indiana. In 2006, export sales supported more than 27,000 jobs in transportation equipment manufacturing. The data also suggest that the number of jobs is not necessarily tied to the dollar value of export sales. For example, a relatively small dollar value of exports in fabricated metal products drives a large number of jobs. Conversely, relatively low total employment in the chemicals industry generates the second-highest export sales.

Figure 12: Indiana Export-Related Employment in Manufacturing, 2006



Note: Employment and exports are defined by NAICS industry codes

Sources: WISER Trade (exports), International Trade Administration and the U.S. Census Bureau (percentage of export-related employment by industry) and Bureau of Economic Analysis (employment by industry)

Despite high export growth in 2007, Indiana’s average annual growth rate from 2006-2008 is well below the U.S. average of 11.3 percent, as shown in **Figure 13**. Indiana’s growth rate was driven down by relatively poor performance in 2006 and 2008. This more recent trend is also evident when Indiana is compared to the other Midwestern states.

Figure 13: Average Annual Rate of Change in Exports, 2006-2008

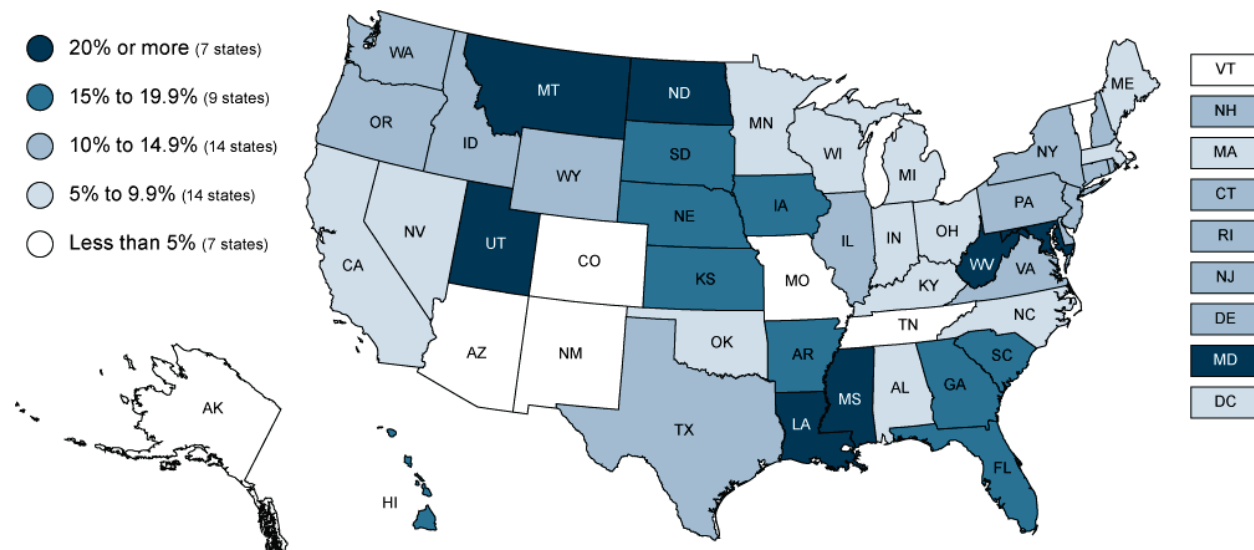


Figure 14 compares the rates of export increase and the relative dollar-value of exports in the Midwestern states. The horizontal axis shows the average annual rate for export growth from 2001 to 2008. The vertical axis plots the change in exports from 2007 to 2008. The bubble size shows the relative value of each state's 2008 exports. A bubble above the diagonal line indicates that the most recent year's growth exceeds the 2001 to 2008 trend. For instance, Iowa's exports accelerated greatly in 2008, so its bubble is well above the diagonal line. Bubbles below the line indicate that the most recent year's growth is below trend—that is, exports were decelerating in 2008. This was the case for Indiana. In 2008, all Midwestern states except Illinois and Iowa decelerated.

Figure 14: Export Trends in the Midwest

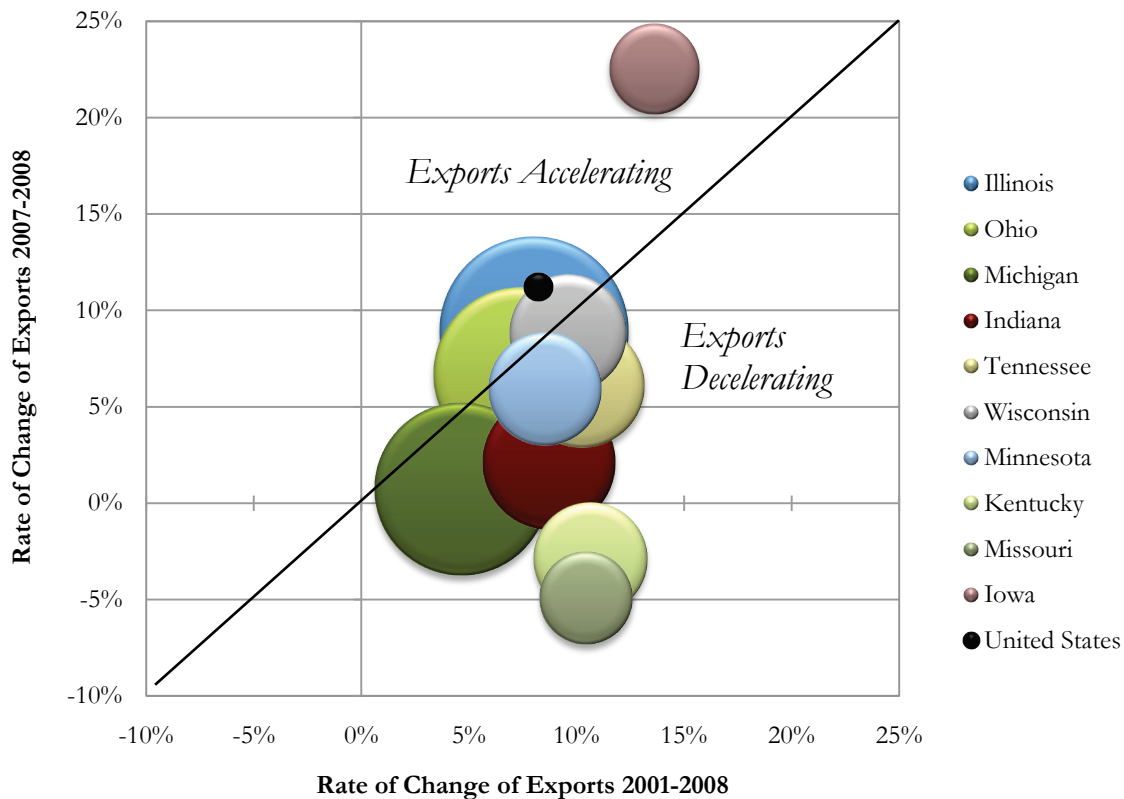
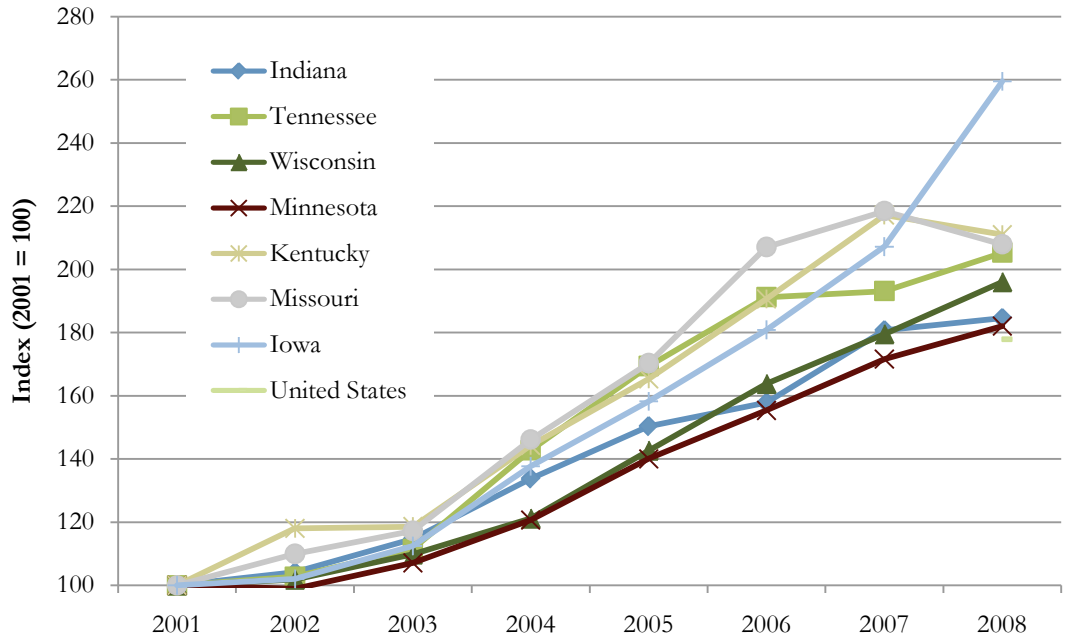


Figure 15 compares Indiana's export growth from 2001 to 2008 with that of the leading Midwestern states and the United States as a whole. The graph uses an index based on 2001, the year of the most recent recession. While Indiana exports have done better on average than the nation since 2001, export growth has not been as robust as it has for the state's more dynamic peers.

Figure 15: Export Data for Select Midwestern States, 2001-2008



Indiana Export Destinations

Canada has long been Indiana's leading export sales market. Since 2000, when Mexico overtook the United Kingdom in export sales, Mexico has been consistently in the number two spot. Now, after a 19 percent drop in sales to Mexico and a 4 percent increase in sales to the United Kingdom for 2008, the two nations might be on course to switch ranks again. **Table 2** summarizes Indiana's exports to top country destinations in 2008. In addition to the current-dollar value of exports to the top 10 destinations, the table presents the growth in exports over the short, medium and long run.

Table 2: Indiana's Top Export Destinations—Value and Average Annual Rate of Change

Export Destination	Value of Exports (Millions of Current Dollars)			Average Annual Rate of Change		
	2008	2007	2006	2007-2008	2001-2008	1998-2008
World Total	\$26,507	\$25,956	\$22,666	0.02	0.09	0.08
Canada	\$10,518	\$10,804	\$9,892	-0.03	0.08	0.05
Mexico	\$2,112	\$2,605	\$2,425	-0.19	0.03	0.11
United Kingdom	\$1,979	\$1,900	\$1,890	0.04	0.11	0.08
France	\$1,419	\$1,501	\$1,378	-0.05	0.11	0.14
Germany	\$1,271	\$1,100	\$734	0.16	0.12	0.11
China	\$930	\$759	\$559	0.23	0.22	0.23
Japan	\$864	\$737	\$831	0.17	0.03	0.00
Brazil	\$637	\$512	\$292	0.24	0.11	0.11
Australia	\$544	\$470	\$397	0.16	0.12	0.10
Netherlands	\$481	\$462	\$473	0.04	0.06	0.06

The top 10 destinations comprised 78.3 percent of Indiana's export sales in 2008, a percentage that has decreased slightly since 2006, when the top 10 comprised 83.2 percent. **Figure 16** presents a picture of Table 2. Canada's bubble clearly dominates the graph. Note that exports to Indiana's top four destinations all decelerated, while exports to four of the remaining six destinations accelerated. This could signal a shift in export reliance for Indiana. More likely, however, is that growth in exports to these countries has been low historically, and as a result, even a relatively slow increase in 2008 registered above these countries' seven-year average annual rate of change. **Figure 17** compares annual rate of change in exports to these countries for three successive years. The smaller destinations, which had exhibited more vibrant growth in the past, grew at a slower rate. In contrast, the larger destinations with low growth in previous years reduced or dramatically slowed their purchases overall.

Figure 16: Export Trends for Indiana's Top Ten Destinations

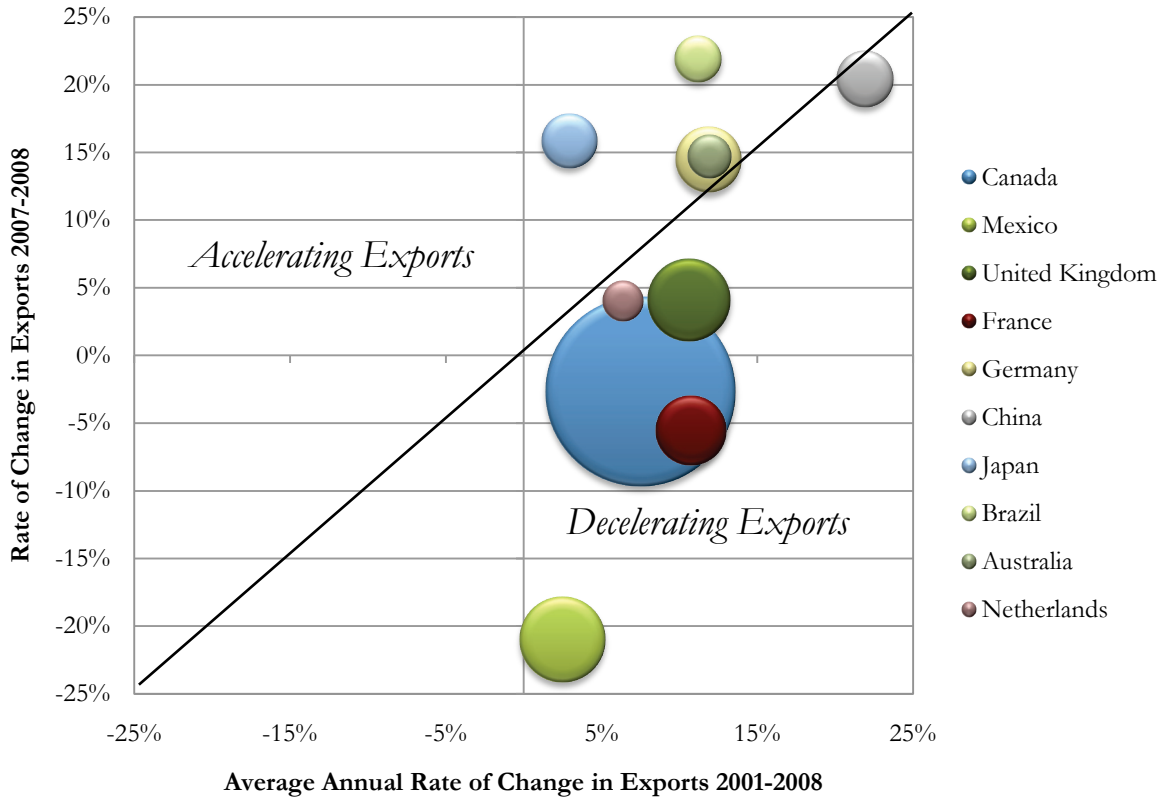
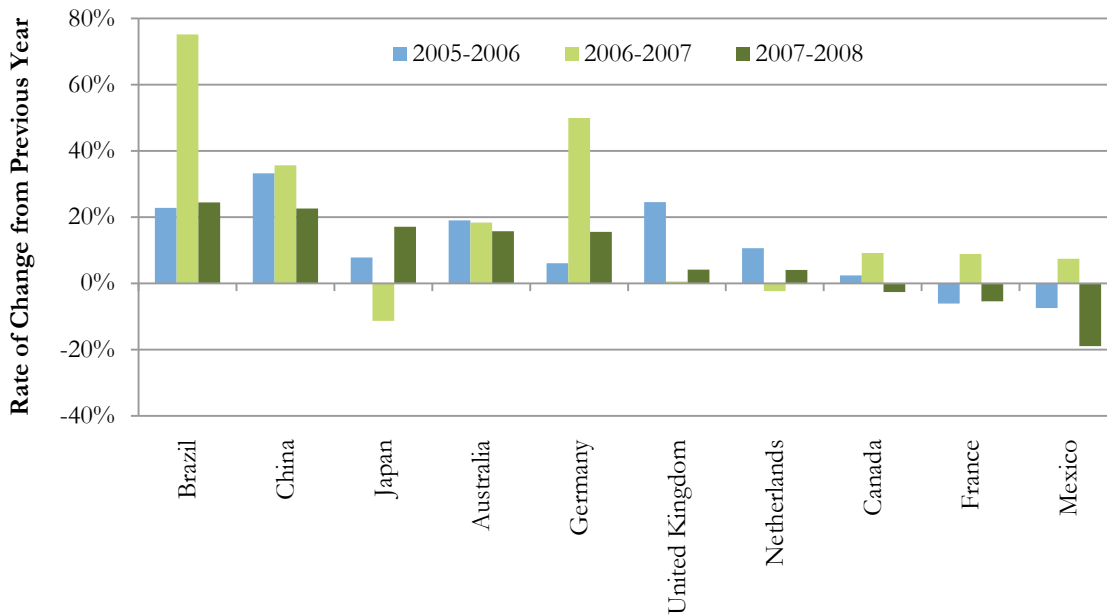


Figure 17: Annual Change in Exports for Indiana's Top 10 Export Destinations



Indiana exported to 198 countries in 2008, but only 26 had export sales greater than \$100 million. **Figure 18** presents those destination countries receiving Indiana exports of more than \$100 million. These 26 countries accounted for 92.4 percent of all Indiana exports. Certain global changes are evident in the statistics from some of Indiana's smaller trading partners. Germany and Spain have increased their imports from Indiana substantially in recent years, with Germany's rising 49.9 percent in 2007 and 15.5 percent in 2008, and Spain's rising 127.3 percent and 33.2 percent in the same years. Other traditional European trading partners have seen the opposite occur. Growth in exports to the Netherlands has slowed to a crawl. In Asia, India more than doubled its purchases from Indiana between 2006 and 2008, while Japan has stayed relatively constant. Notably, China, Indiana's sixth largest trading partner, increased its purchases from \$559 million in 2006 to \$930 million in 2008.

Figure 18: Destinations for Indiana Exports Exceeding \$100 Million, 2008

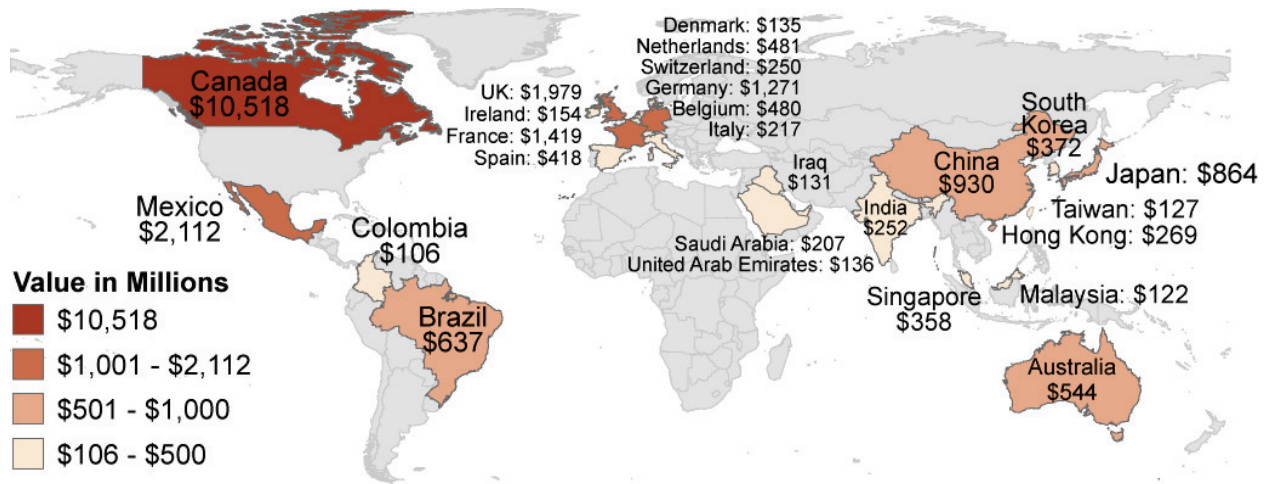
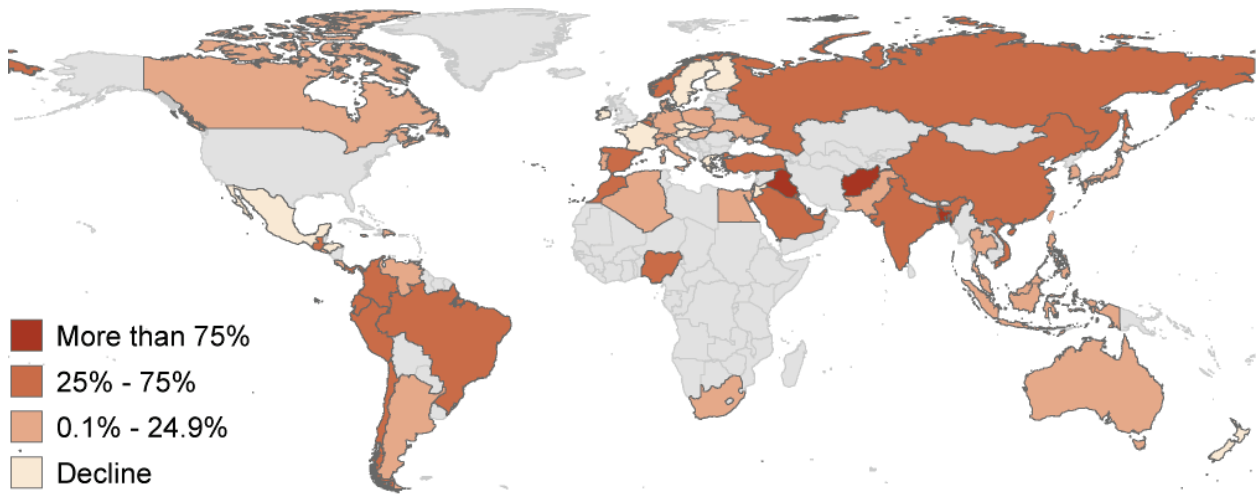


Figure 19 presents export growth rates from 2005 to 2008 across the globe for countries that purchase more than \$10 million in products from Indiana. The average annual rate from 2005 to 2008 for all partners was 6.8 percent, despite the fact that 75 countries had average growth rates above 10 percent. Canada weighed heavily on the overall average, as it accounted for 39.7 percent of all Indiana exports in 2008. Exports to Canada have averaged an annual rate of 2.8 percent. Mexico, with the second largest share of Indiana exports at 7.9 percent, also pulled the figure down with an annual average rate of -7.1 percent. **Figure 20** shows how the other top 10 countries compare with respect to their share of Indiana's exports.

Figure 19: Indiana Average Annual Export Growth by Destination, 2005-2008



Note: Includes only countries that purchase more than \$10 million in Indiana exports

Figure 20: Top Indiana Export Destinations, 2008

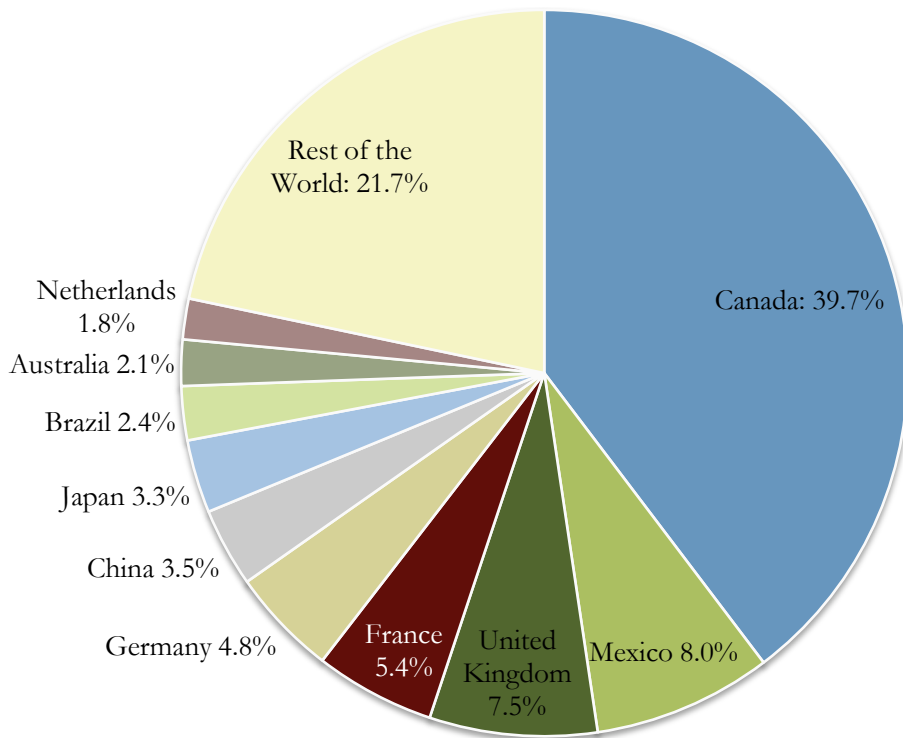


Figure 21 presents a profile of the top six Indiana export sales destinations between 2001 and 2008. Compared to the European export markets, the growth of exports to Canada and Mexico have lagged. Export growth to China has accelerated dramatically since 2004. Between 2001 and 2008, Indiana exports to China have more than quadrupled.

Figure 21: Indiana Export Index for Top Six Locations, 2001-2008

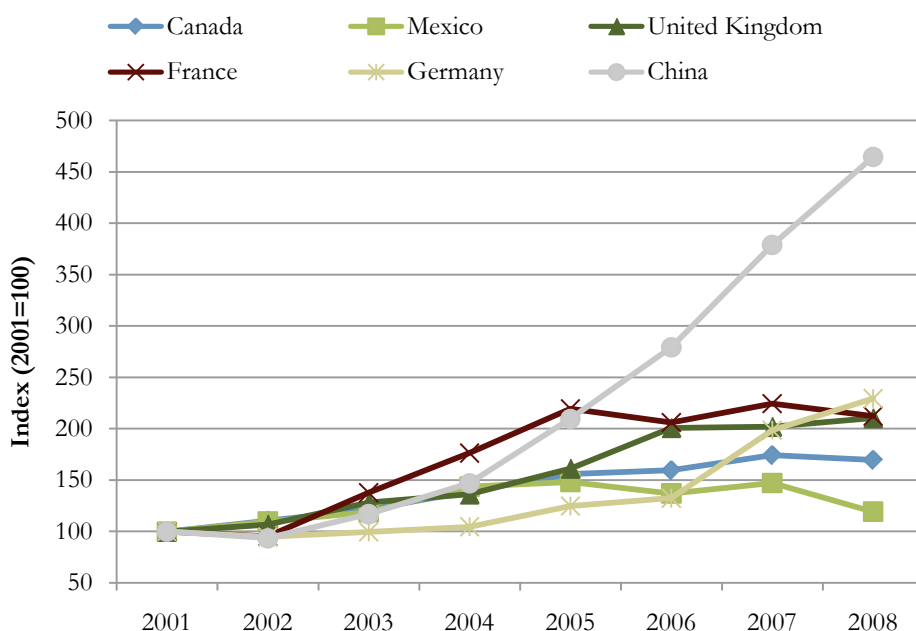


Table 3 identifies the largest changes in export sales by industry, both positive and negative, for Indiana’s top 10 export destinations in 2008. These changes are reported in millions of dollars. This presentation provides some sense of the impact that each of the leading export destinations and each of the leading export industries have on Indiana exports. For example, pharmaceutical exports increased \$524 million from 2007 to 2008, even though Canada, Indiana’s largest trading partner, reduced its purchases of pharmaceutical products. The table shows a predominantly European rise in demand for these products. Similarly, it shows that industrial machinery exports increased \$107 million despite a \$494 million plummet in purchases in that sector by Mexico, Indiana’s second-largest trading partner. Optical and medical instruments, on the other hand, experienced significant dollar growth due to fairly uniform increases from the smaller of the top 10 partners, with only minimal sales decreases in the top three.

Table 3: Indiana's Largest Positive and Negative Changes in Exports by Industry for 10 Largest Export Destinations, 2007 (values in millions)

Export Destination	Vehicles and Parts	Industrial Machinery	Pharmaceutical Products	Electrical Machinery	Optical and Medical Instruments	Organic Chemicals
World Total	-839	107	524	206	231	-227
Canada	-718	133	-30	119	-3	-6
Mexico	-4	-494	7	-46	-5	7
United Kingdom	-26	-16	252	13	-26	-117
France	9	-24	87	5	12	-248
Germany	-19	50	122	11	13	-2

Export Destination	Vehicles and Parts	Industrial Machinery	Pharmaceutical Products	Electrical Machinery	Optical and Medical Instruments	Organic Chemicals
China	-5	34	1	17	10	36
Japan	6	7	23	5	54	-25
Brazil	14	43	13	4	13	36
Australia	22	1	-1	8	36	-1
Netherlands	-39	40	-20	11	2	-2

Note: Shaded cells indicate destination countries that did not experience at least a \$10 million movement in exports by industry

Nevertheless, the top three destinations still account for most of the changes in Indiana's export mix. **Figure 22, Figure 23** and **Figure 24** plot imports of the more important Indiana products to Canada, the United Kingdom and Mexico, respectively.

Figure 22: Indiana Exports to Canada by Industry, 2001-2008

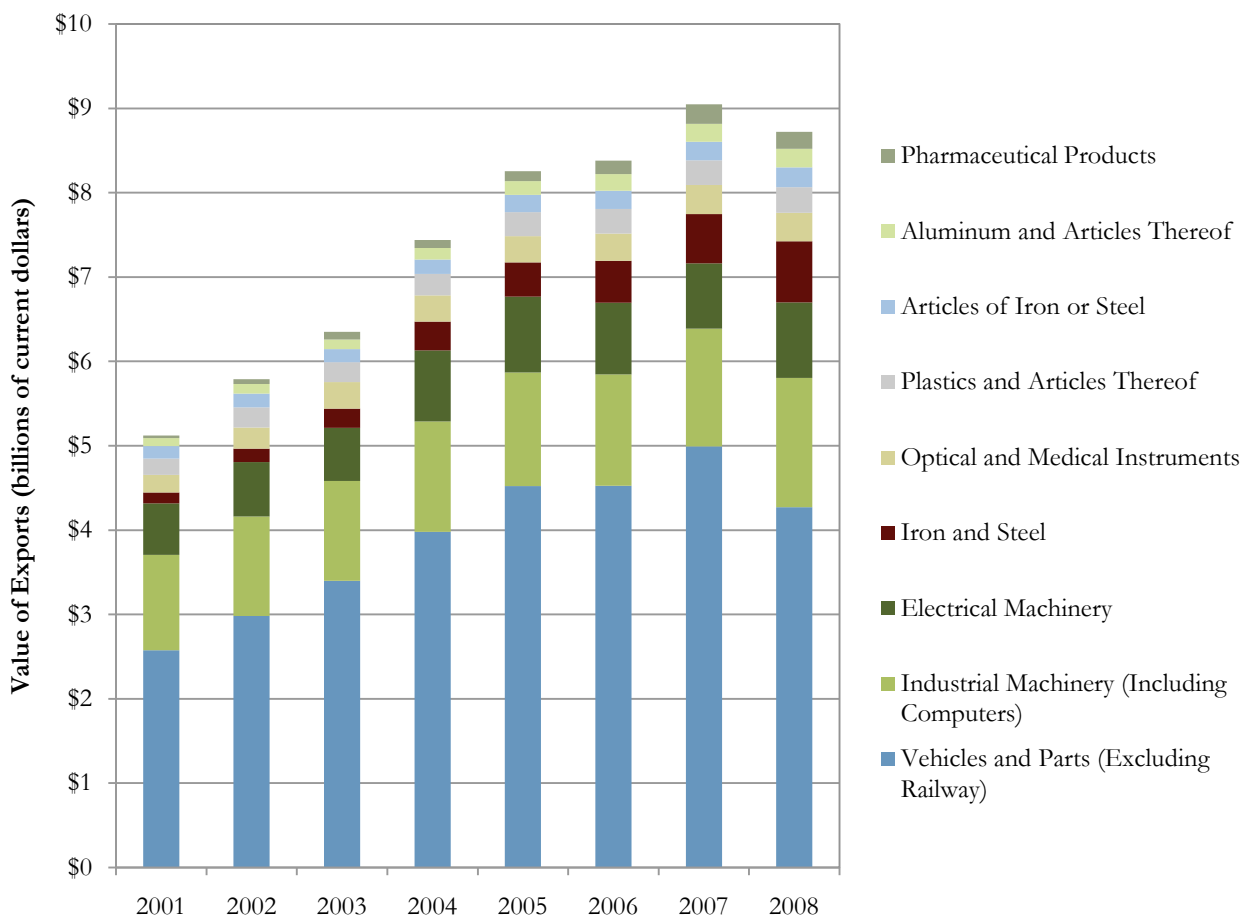


Figure 23: Indiana Exports to the United Kingdom by Industry, 2001 to 2008

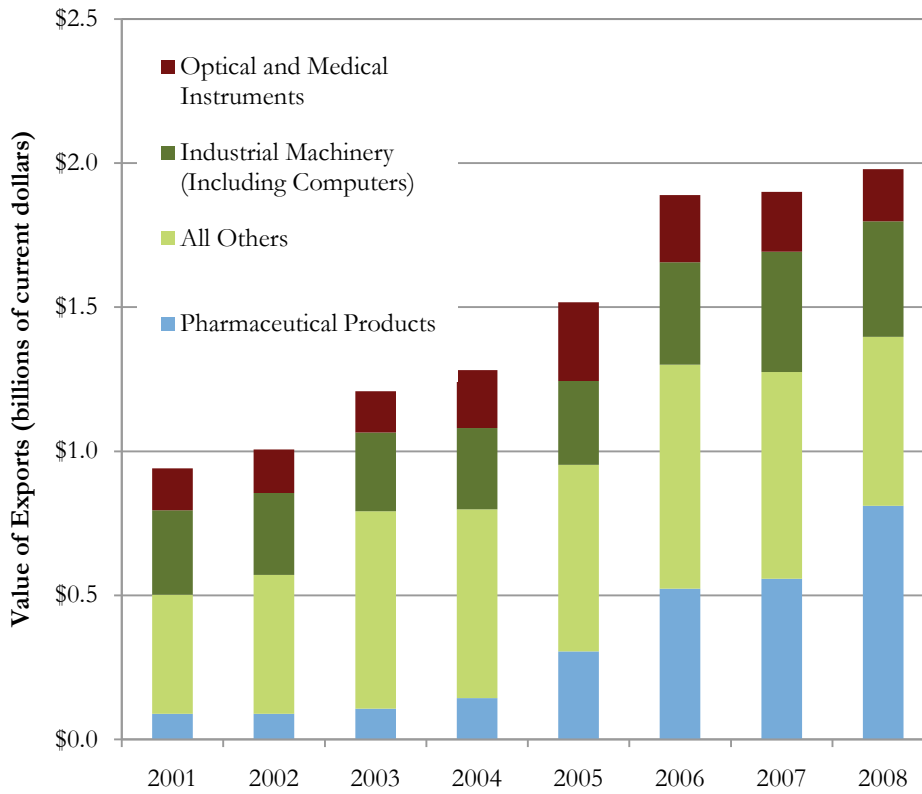
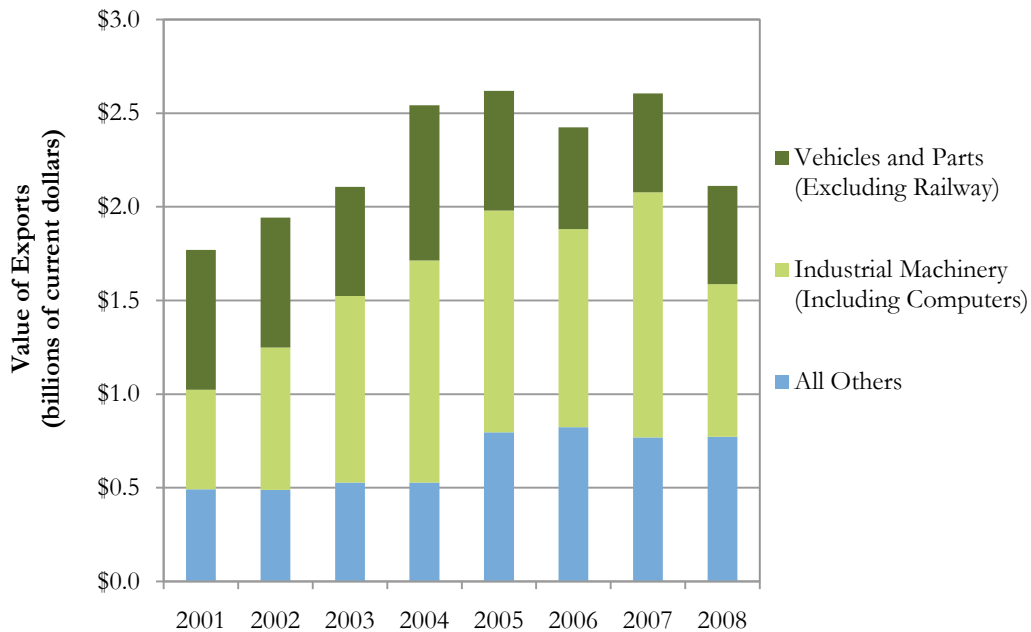


Figure 24: Indiana Exports to Mexico by Industry, 2001-2008



Indiana shipments to Canada fell \$286 million, or 2.7 percent, driven almost exclusively by a \$717 million drop in vehicles and parts exports. Increases of \$130 million from industrial machinery, \$120 million from electric machinery, and \$140 million from iron and steel helped to cushion the loss from vehicles and parts.

Exports to the United Kingdom rose \$79 million, or 4.2 percent, from 2007 to 2008. A 45.2 percent jump of \$252 million in pharmaceutical product exports explains this phenomenon. The fact that the United Kingdom increased its pharmaceutical purchases by nearly half while simultaneously pulling back its imports in all other categories bodes very well for the Indiana pharmaceutical industry's future with this trading partner.

Indiana exports to Mexico in 2008 dropped \$493 million, or 18.9 percent, from their 2007 figure. As with Canada and the United Kingdom, this change can be attributed to one main source. In Mexico's case, this source is industrial machinery exports from Indiana, which fell \$494 million from 2007 to 2008. This category's contraction constitutes the most significant change in the mix of Mexican imports from Indiana.

Indiana Export Industries

Table 4 presents the top 10 export categories for the state in 2008, as well as average annual rates of change from 2007-2008 and 2001-2008. **Figure 25** presents these data graphically. Vehicles and parts exports and industrial machinery exports comfortably maintained their perch at the top of Indiana's 10 largest export industries in 2008. Other industries have been growing steadily, however, and are chipping away at the top two's share. Pharmaceutical product exports maintained the highest average annual rate of growth between 2001 and 2008 with 23.0 percent. This figure is significant, in that pharmaceutical products are third on the list. These exports totaled almost half the value of industrial machinery exports in 2008, increasing 27.6 percent from 2007 while industrial machinery sales increased by only 2.0 percent. Other industries that experienced double-digit average annual growth between 2001 and 2008 include optical and medical instruments, as well as iron, steel and articles thereof.

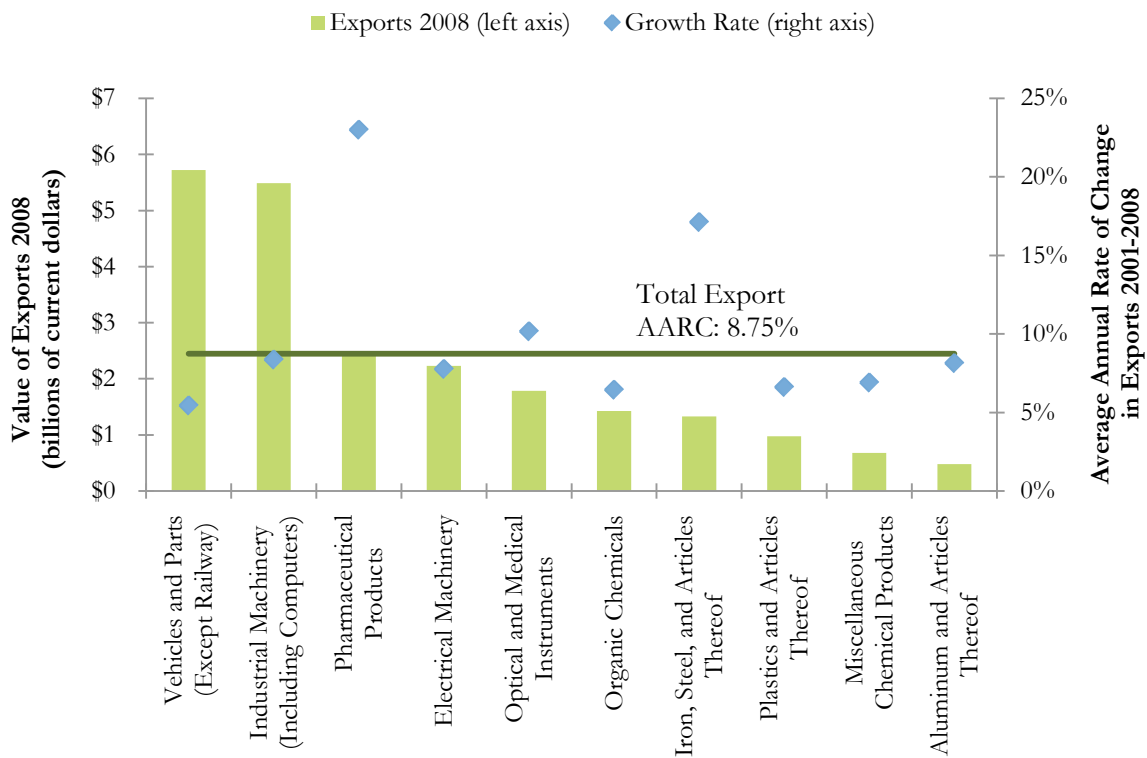
Table 4: Indiana's Top 10 Export Industries

Industries ^a	Exports (in millions)	Average Annual Growth Rate	
	2008	2007-2008	2001-2008
Vehicles and Parts (Excluding Railway)	\$5,719	-12.8%	5.5%
Industrial Machinery (Including Computers)	\$5,490	2.0%	8.4%
Pharmaceutical Products	\$2,426	27.6%	23.0%
Electrical Machinery	\$2,233	10.2%	7.8%
Optical and Medical Instruments	\$1,788	14.8%	10.2%
Organic Chemicals	\$1,428	-13.7%	6.5%
Iron, Steel and Articles Thereof ^b	\$1,331	13.5%	17.1%
Plastics and Articles Thereof	\$978	4.4%	6.6%
Miscellaneous Chemical Products	\$681	3.3%	6.9%
Aluminum and Articles Thereof	\$478	10.2%	8.1%

a. Industries defined by Harmonized System of Commodity Classifications

b. This "industry" combines two commodity classifications: 1) Iron and Steel and 2) Articles of Iron and Steel.

Figure 25: Indiana's Top 10 Export Industries



The following section reports on the most important export industries in greater detail.

Vehicles

Figure 26 shows the share of U.S. vehicle and parts exports in 2008 for destination countries with export purchases greater than \$200 million. Canadian purchases of vehicles and parts have fallen in relative significance in the last few years. In 2006, vehicles and parts exports to Canada accounted for over half of U.S. exports in this category, but constituted only 40.5 percent of total vehicle exports in 2008. This lost share is not shifting to Mexico, the U.S.'s second-largest trading partner. Mexico's share has remained constant. Rather, Germany, Saudi Arabia and the United Arab Emirates, among others, have been increasing their shares in recent years to the point where, in 2008, the three countries together commanded a larger share of U.S. vehicle exports than Mexico did.

Figure 26: Destinations for U.S. Exports of Vehicles and Parts (Excluding Railway), 2008

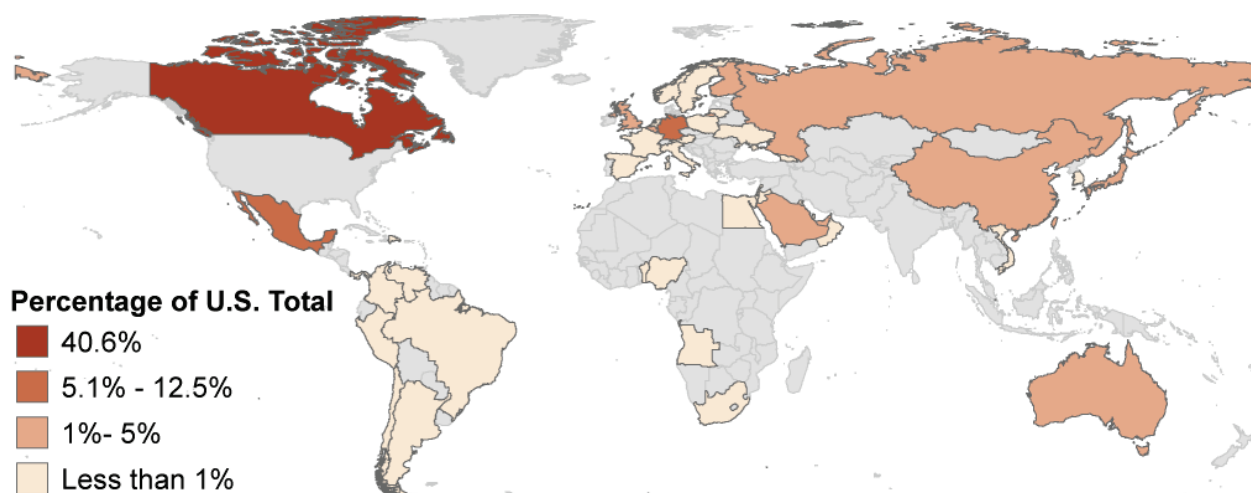
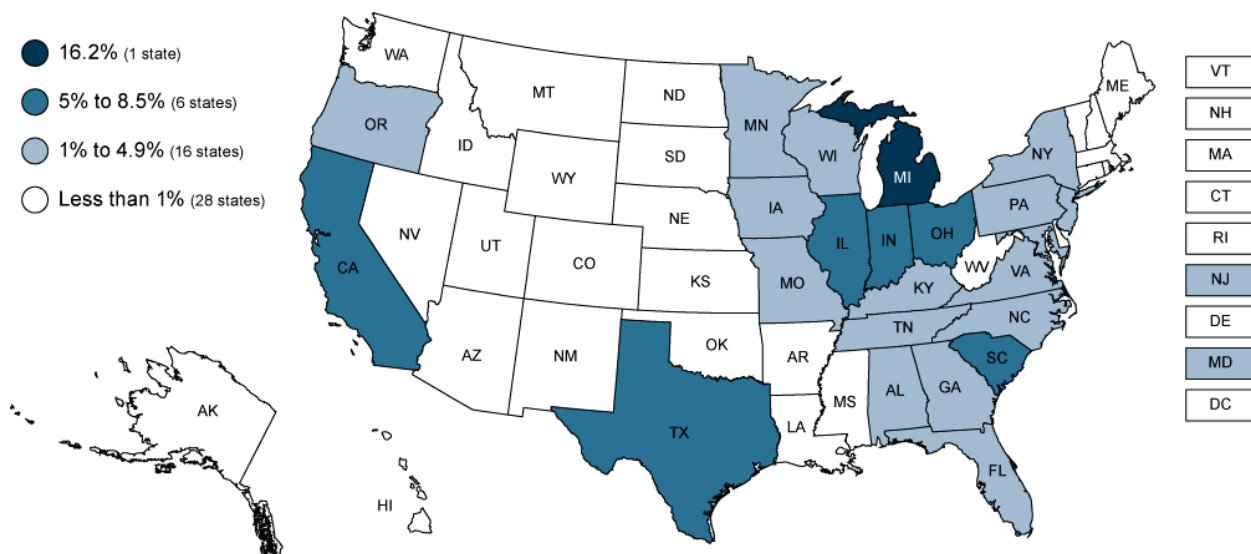


Figure 27 presents the state sources of U.S. vehicle and parts exports. In 2008, Michigan’s share of U.S. vehicle and parts exports, while still unambiguously higher than any other state’s at 16.2 percent, decreased from its 2007 level of 18.5 percent. As Michigan and Ohio’s exports decreased in 2008, Texas exports increased, elevating Texas above Ohio in rank and increasing the state’s share of total vehicle exports from 7.7 percent to 8.5 percent. Like Michigan and Ohio, Indiana’s share of this category has declined. Indiana ranked seventh on the 2008 list with 5.1 percent. In 2007, Indiana ranked fifth.

Figure 27: Share of U.S. Vehicle Exports (Excluding Railway), 2008



There may even be further erosion in Indiana’s status in the future. **Figure 28** shows a significant realignment of vehicle exports among the states. California and South Carolina’s high growth rates catapulted them over Indiana in 2008. The states now ranked below Indiana—Alabama, Florida, New York and New Jersey—exhibit high growth rates, similar to those of California and South Carolina. As the shares of vehicle exports realign, the higher growth rates in states with only slightly smaller shares threaten to overtake the slower-growing states, like Illinois and Ohio.

Figure 28: Leading States in the Export of Vehicles and Parts (Excluding Railway)

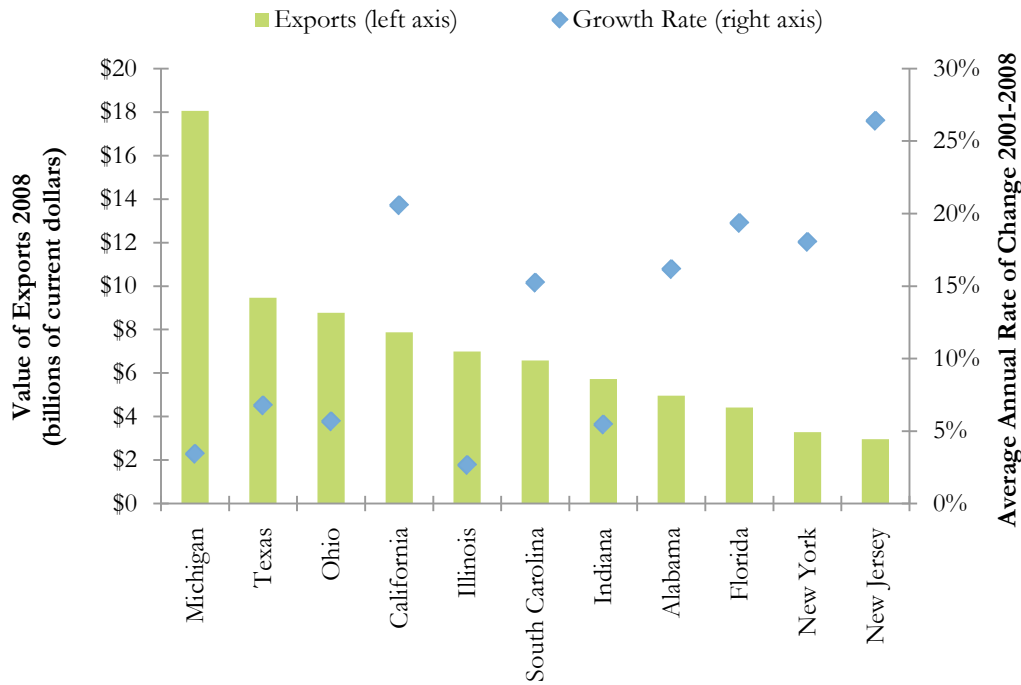


Figure 29 shows how the top five destinations for Indiana’s vehicle exports compare. As noted above, Canada has been the largest and most consistent export market for Indiana’s vehicles and parts, with \$4.2 billion and growing at 7.2 percent on average since 2001. Mexico is a distant second. If recent trends continue, the gap will widen. Since 2001, Indiana exports of vehicles and parts to Mexico have fallen at an average annual rate of 5.0 percent. Of the smaller markets, Australia overtook Belgium in 2008 to be ranked third, but both have continued to grow at double-digit rates on average since 2001.

Figure 29: Indiana's Top Five Export Destinations for Vehicles and Parts (Excluding Railway)



Indiana’s largest single exported commodity within the broadly defined category of vehicles and parts is that of automobile parts and accessories. **Figure 30** shows the top exporting states. Not surprisingly, Michigan led the group this year, but Texas was second and grew at an average annual rate of 4.3 percent annually from 2001 to 2008. Michigan still exported more than twice the amount Texas did, but with Michigan’s total exports in this category shrinking by an average 0.9 percent annually, the space is narrowing. Indiana is also losing its relative prominence, as auto parts and accessories exports have also diminished since 2001. The largest and second-largest foreign purchasers of Indiana’s automobile parts and accessories are Canada and Mexico, with Japan taking the third position.

Figure 30: Top Five Exporters of Motor Vehicle Parts and Accessories

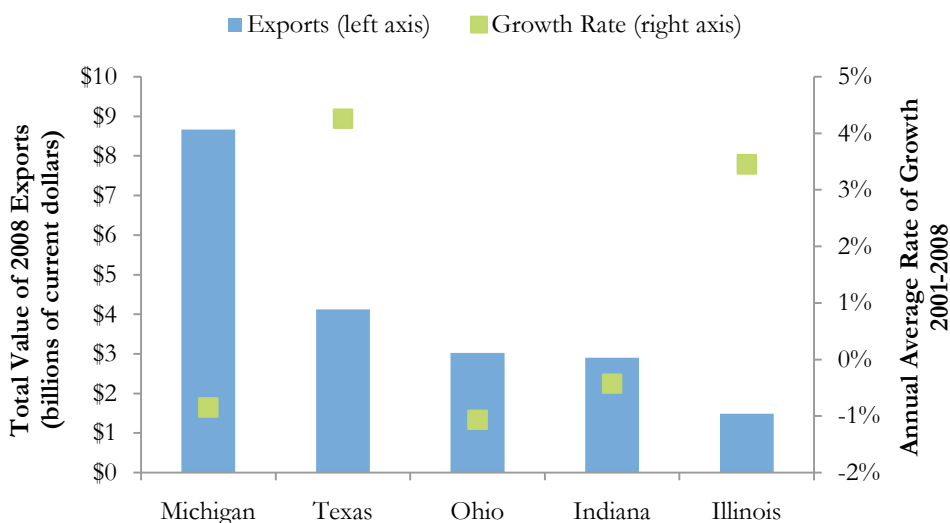
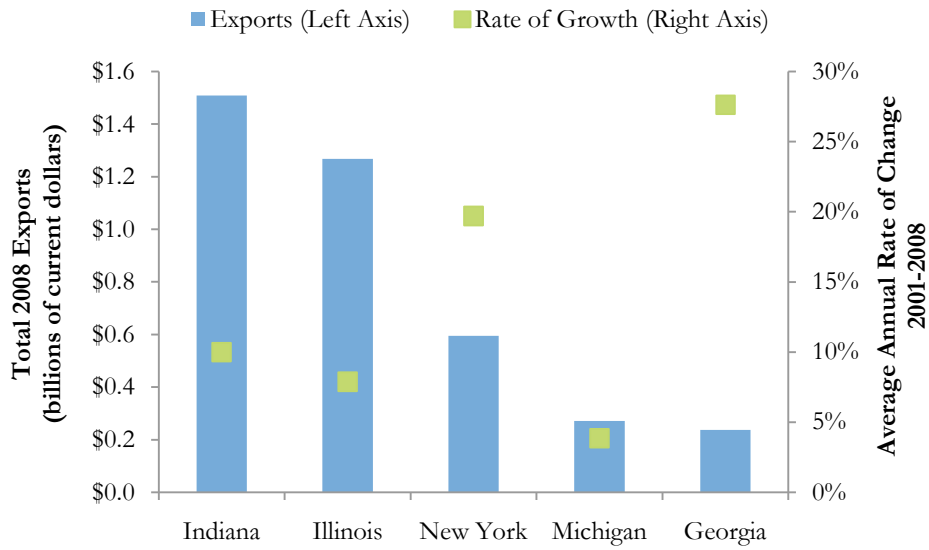


Figure 31 describes the market for another sub-category for which Indiana is a leading exporter, namely, compression-ignition internal combustion piston engines. Indiana grossed \$1.50 billion in exports in 2008, with Illinois close behind at \$1.26 billion. The two states constituted more than half of total U.S. exports in this category. While Indiana and Illinois currently enjoy a fairly comfortable margin between them and other states, some shifts are apparent. Since 2001, New York and Georgia’s exports of this commodity have grown at double-digit annual rates on average. With nearly \$0.6 billion in export sales in 2008, and growing twice as fast as Indiana, New York might one day compete for the top spot on this list.

Figure 31: Top Five Exporters of Compression-Ignition Internal Combustion Piston Engines



Industrial Machinery

Figure 32 presents export value and growth among the top state exporters of industrial machinery. Indiana fell in rank from 11th in 2007 to 12th in 2008. Texas and California clearly dominate the market. There are many smaller states, however, with similar levels of exports in this area and with robust average annual growth rates. At \$5.4 billion in exports and growing at 8.4 percent annually since 2001, Indiana faces stiff competition within this group.

Figure 32: Leading States in the Export of Industrial Machinery

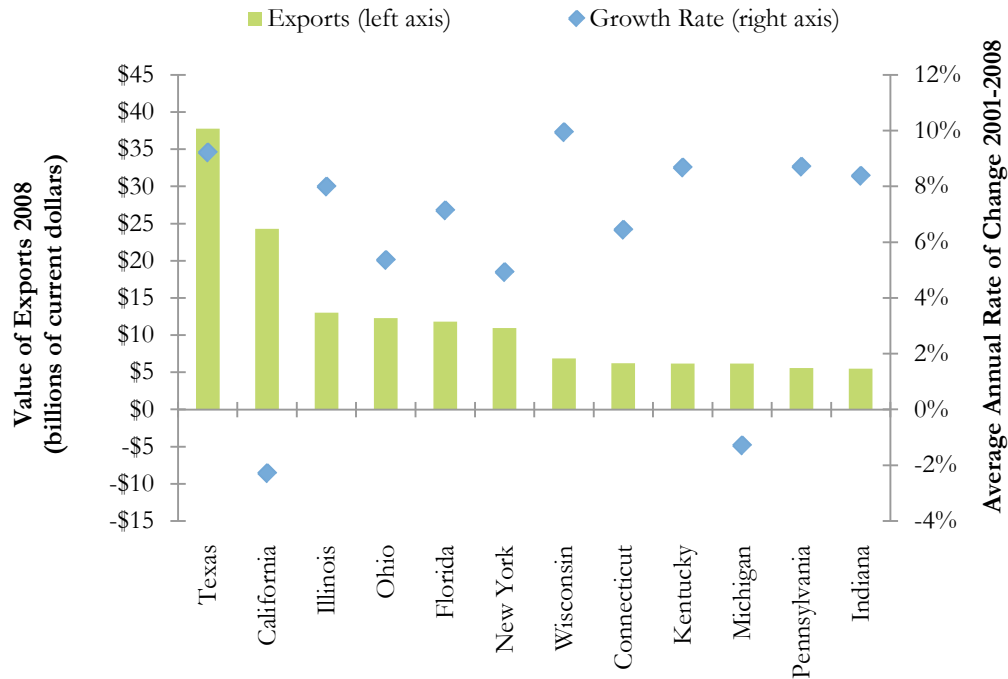
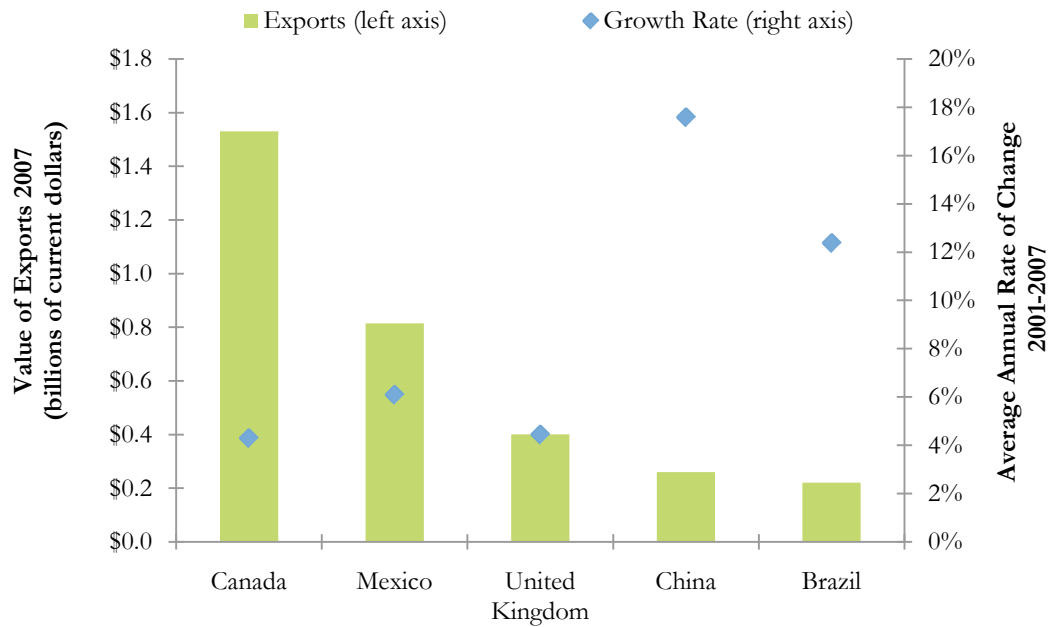


Figure 33 plots the 2008 value of exports and the average annual rate of growth for industrial machinery exports to Indiana’s top five destinations from 2001 to 2008. In 2008, as before, Canada purchased the most from Indiana. Mexico, despite having reduced its industrial machinery imports from Indiana by 37.7 percent from their 2007 level, has grown at an average annual rate of 6.1 percent since 2001. The country also purchased more than double the dollar amount imported by the third-largest buyer of Indiana industrial machinery, the United Kingdom. The emerging economies of China and Brazil round out the top five markets. Beyond the top five, several other markets are growing and are keeping pace with China and Brazil. Singapore, Belgium and Germany all purchased over \$150 million in industrial machinery from Indiana in 2008, and exports to these countries grew more than 40 percent from the previous year.

Figure 33: Indiana's Top Five Export Destinations for Industrial Machinery



Pharmaceuticals

Leading pharmaceutical exporting states are shown in **Figure 34**. California and Massachusetts are the leaders among the states with 16.7 percent and 13.1 percent of U.S. pharmaceutical exports, respectively. (While Puerto Rico contributes 32.6 percent of the nation's pharmaceutical exports, it is not ranked as a state, and its total is excluded from state ranking calculations.) Indiana ranks third with 10.5 percent of state exports, an improvement on its 2007 share of 9.5 percent. As **Figure 35** shows, Indiana's 23.0 percent average annual growth in pharmaceutical product exports is competitive with the rest of the top 10 exporting states, surpassed only by Massachusetts and Delaware, which boast 25.7 percent and 33.1 percent average annual growth, respectively.

Figure 34: Share of U.S. Pharmaceutical Exports, 2008

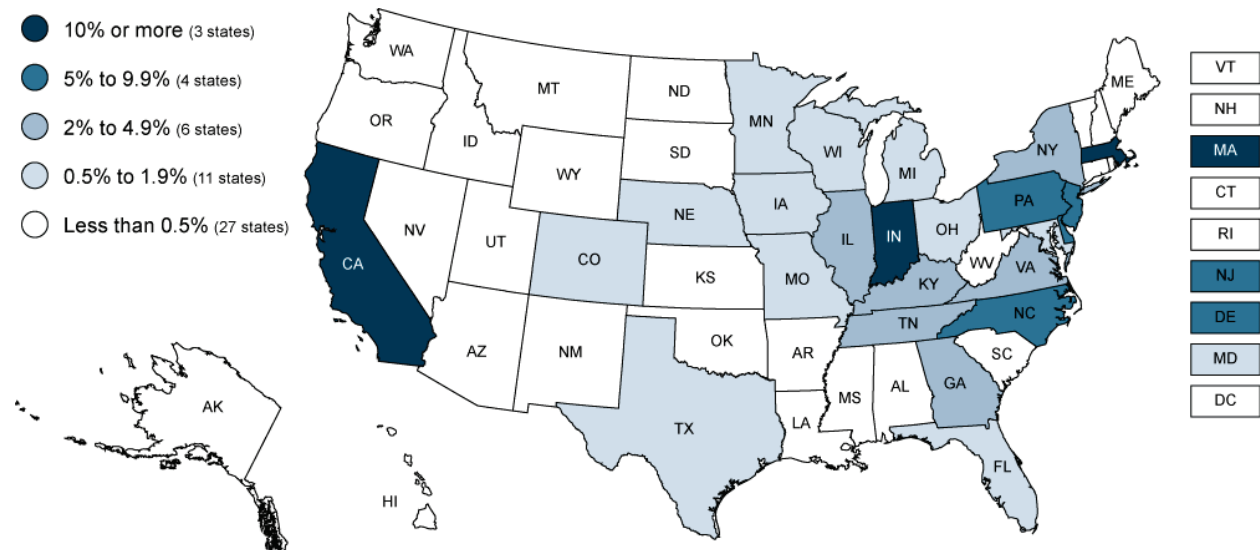


Figure 35: Leading States in the Export of Pharmaceuticals

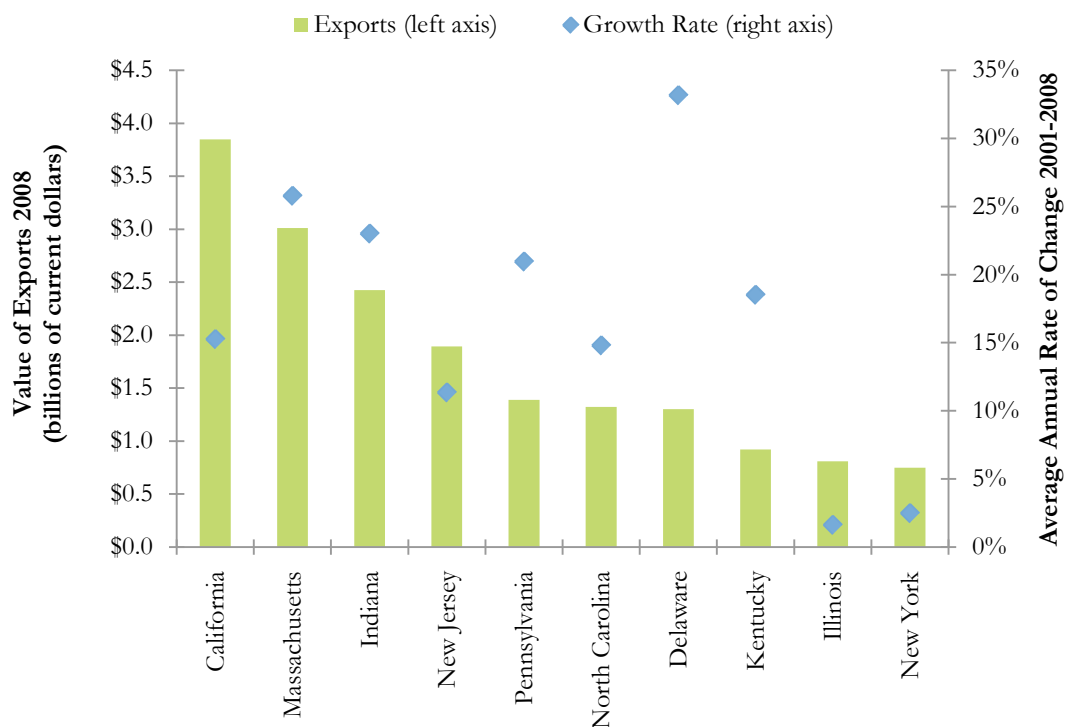


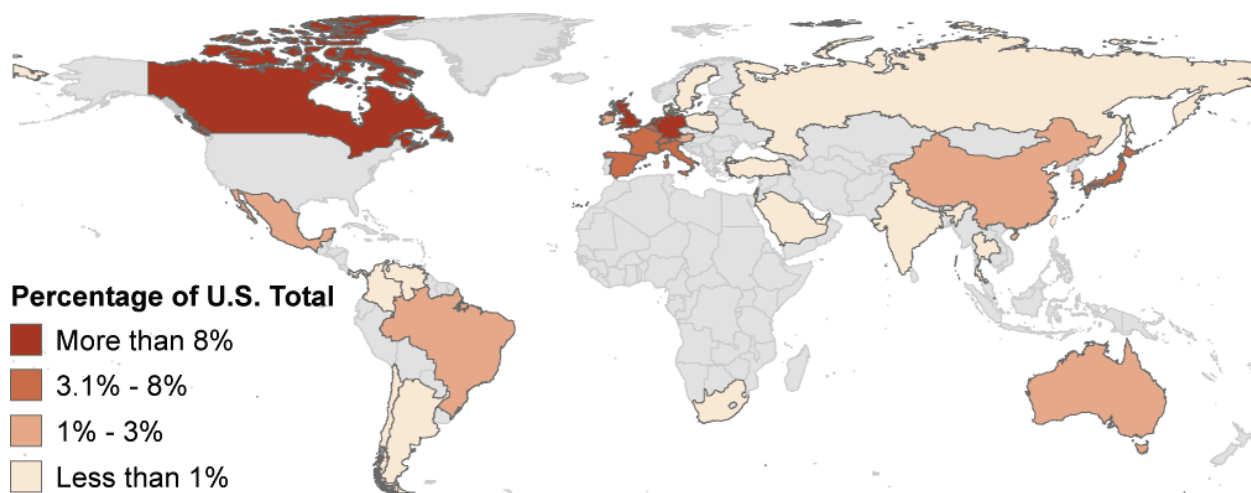
Figure 36 presents the top five export destinations for Indiana’s pharmaceuticals. Four of the top five destinations are in Europe. The United Kingdom imported the most pharmaceutical products from Indiana in 2007, only to be knocked to third place by Germany and the Netherlands in 2008. This result may have been inevitable, though, considering the differential rates of growth. Canada’s pharmaceutical imports from

Indiana decreased from 2006 to 2007 and from 2007 to 2008, suggesting it might one day be replaced in the top five markets by faster-growing European export markets. The scope of Indiana pharmaceutical products' destinations, including several rapidly growing European markets, can be seen in **Figure 37**.

Figure 36: Indiana's Top Five Export Destinations for Pharmaceutical Products



Figure 37: Destinations for U.S. Exports of Pharmaceutical Products, 2008



Vaccines for human medicine make up the lion's share of Indiana's pharmaceutical exports. **Figure 38** displays the top five states exporting this pharmaceutical sub-category. In 2008, Indiana was the obvious leader, exporting more than twice the dollar value in vaccines and growing at almost twice the average annual rate of its nearest competitor between 2001 and 2008. Indiana totaled \$816 million in vaccine exports, totaling just over 50 percent of the U.S. exports of vaccines for human medicine in 2008. In 2007, Indiana's share of U.S. vaccine exports was just over 40 percent.

Figure 38: Top Five Exporters of Vaccines for Human Medicine

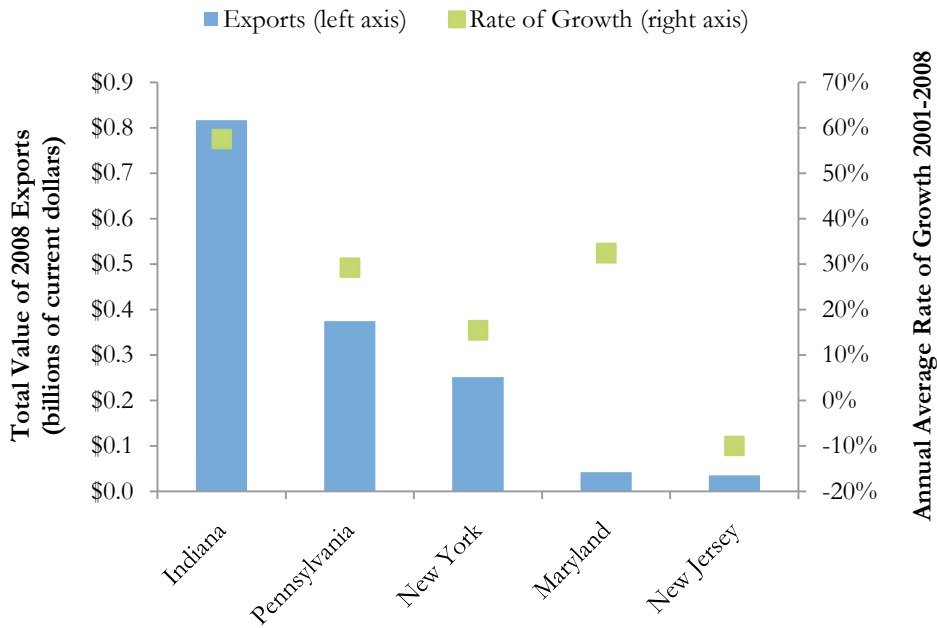
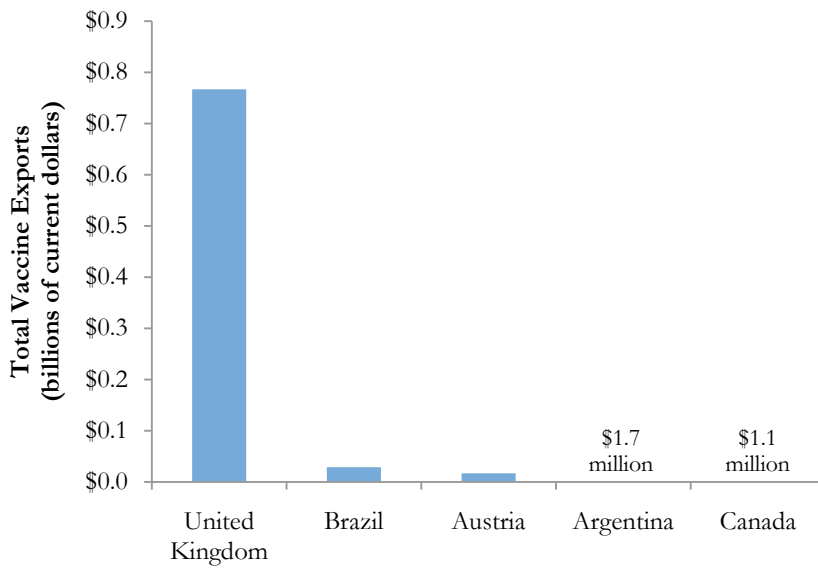


Figure 39 shows the top five foreign destinations of Indiana’s vaccines. The United Kingdom is the preeminent customer. Buying over 90 percent of Indiana’s vaccine exports, the United Kingdom has been responsible for this sub-category’s rapid growth.

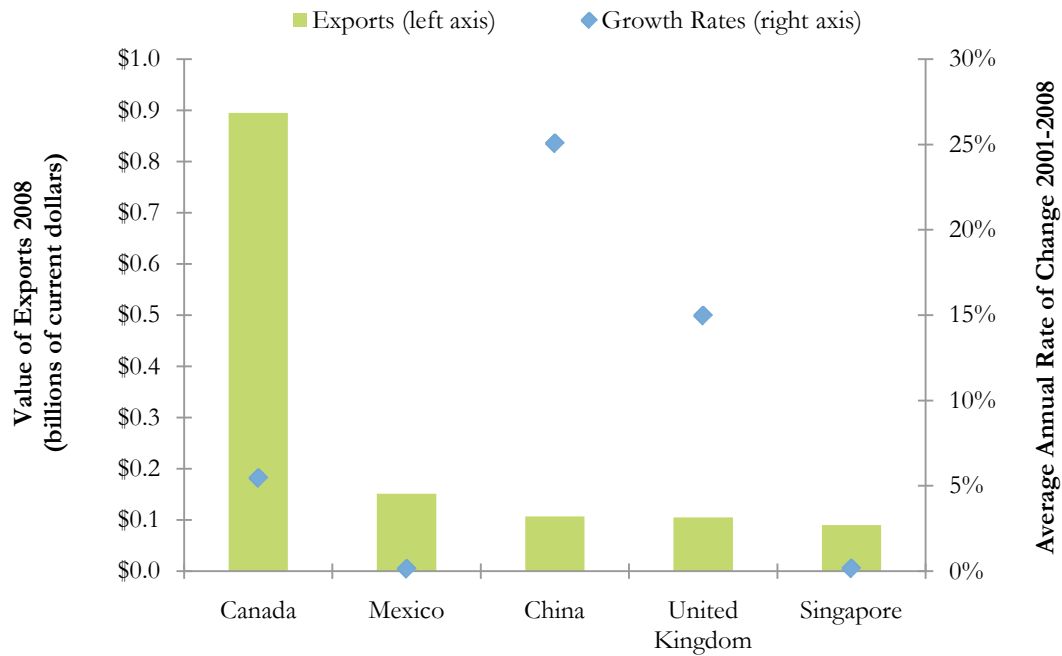
Figure 39: Top Five Destinations for Indiana Vaccine Exports



Electrical Machinery

Compared to Indiana’s exports overall, electrical machinery exports held up well in 2008. **Figure 40** shows sales volume and growth rates of Indiana’s electrical machinery exports to that category’s top five markets: Canada, Mexico, Singapore, the United Kingdom and China. Canada purchased the largest share of these products in 2008: \$895 million. China, which had ranked fifth in 2007, ranked third in 2008 with \$107 million. China’s purchases of Indiana’s electrical machinery increased at an average annual rate of 25.0 percent from 2001 to 2008. Total Indiana electrical machinery exports grew at 10.1 percent in 2008, pulled down by Mexico’s 23.4 percent reduction in purchases from 2007 to 2008.

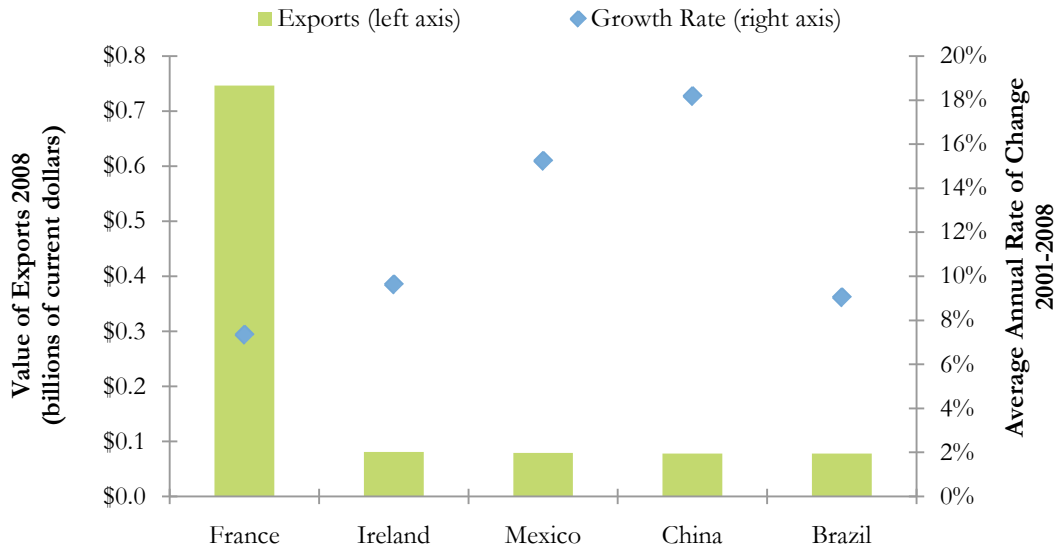
Figure 40: Indiana's Top Five Export Destinations for Electrical Machinery



Organic Chemicals

Growth in this export category has been unsteady, increasing by an average annual rate of about 6 percent since 2001, but, from 2007 to 2008, dropping by 13.7 percent. **Figure 41** graphs the top five export destinations of Indiana’s organic chemical production, a category that includes products such as insulin, various proteins, vitamins and even antibiotics. France is clearly Indiana’s largest trading partner in this area, purchasing \$746 million in organic chemicals in 2008. The United Kingdom has seen erratic swings in imports from this sector. It dropped in rank from second in 2007 with \$180 million in imports to sixth with \$63 million in 2008. The remainder of the top five imports almost uniform levels of organic chemicals from Indiana, all between \$77 million and \$81 million.

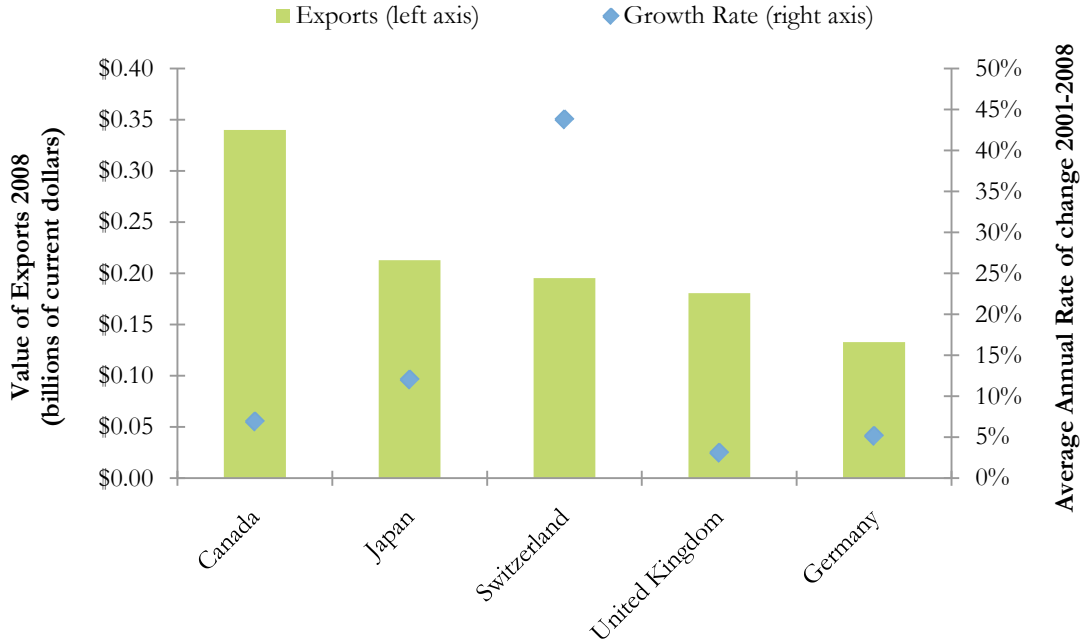
Figure 41: Indiana's Top Five Export Destinations for Organic Chemicals



Optical and Medical Instruments

Figure 42 profiles Indiana's optical and medical instrument export markets. In 2008, the top destinations for this category shifted. While Canada and the United Kingdom, which had topped the list in 2007, reduced their purchases of optical and medical instruments in 2008, Japan and Switzerland increased theirs, raising them to the second and third spots, respectively. Canada still tops the list with \$340 million in Indiana exports purchased, but exports to the country only grew at an average of 6.9 percent per year from 2001 to 2008—below the average annual growth of 10.1 percent for the export category. Conversely, the Japanese and Swiss markets grew at 12.0 percent and 43.7 percent annually on average during the same time period. Considering both the rapid growth in these two export markets and the fact that together they total more than the Canadian market, it is conceivable that one, or both, of these markets could unseat Canada and dominate demand for Indiana optical and medical instruments.

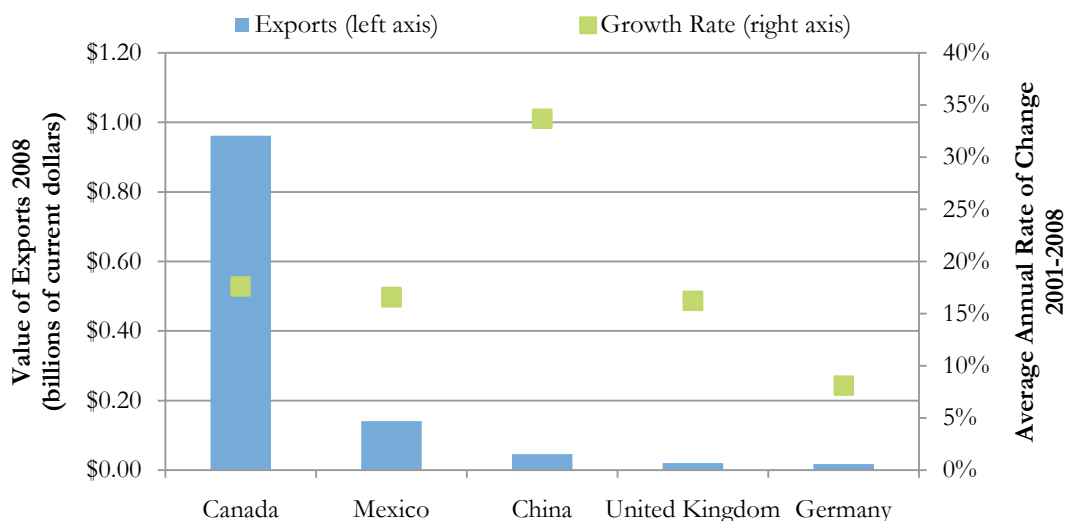
Figure 42: Indiana’s Top Five Export Destinations for Optical and Medical Instruments



Iron, Steel and Iron and Steel Products

Figure 43 presents Indiana’s iron, steel and related product exports to Canada, Mexico, China, the United Kingdom and Germany. As the graph shows, this product category is completely dominated by Canada’s \$961 million in 2008 purchases. As a whole, the market only totals \$1.3 billion, making Canada’s share 72.2 percent. This is also a high-growth sector, with even the dominant Canadian market growing at over 17.6 percent per year on average. The Chinese market, a distant third, has been growing at an average rate of 33.6 percent, but is still far from constituting a meaningful share of Indiana’s iron, steel and related products exports.

Figure 43: Indiana's Top Five Export Destinations for Iron, Steel and Related Products



Plastics

As with most export categories, **Figure 44** shows that Canada is the primary foreign destination for Indiana plastic products. The next closest destination in dollar value is the Netherlands with \$78 million. The growth rates of the rest of the top five are worth noting. Mexico reduced its purchases of plastic products from Indiana in recent years, from 2006 to 2007 purchases fell by 15.6 percent and from 2007 to 2008 purchases fell by 16.8 percent. In contrast, other countries are experiencing rapid growth in their plastics purchases from Indiana, with the Netherlands, China and Hong Kong markets all growing at average annual rates above the category average of 6.6 percent from 2001 to 2008.

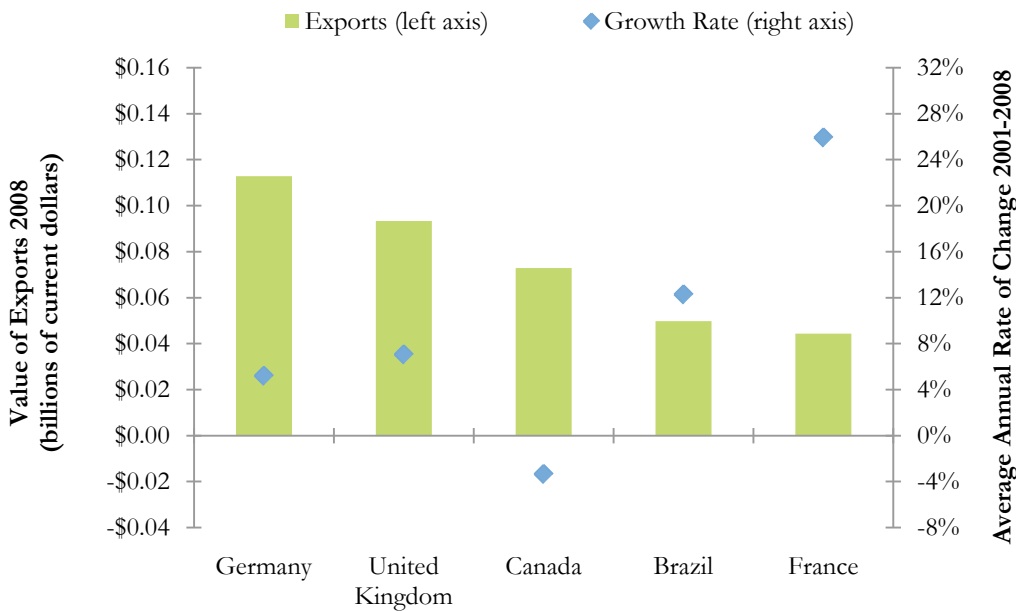
Figure 44: Indiana's Top Five Export Destinations for Plastic Products



Miscellaneous Chemicals

Exports of miscellaneous chemicals are far more evenly distributed among destinations, with only about \$20 million separating the totals for each of the top four, as **Figure 45** shows. While the market is somewhat stable among the top three, with Germany, the United Kingdom, and Canada topping the list since 2001, the fourth and fifth spots have rotated frequently. Brazil more than doubled its miscellaneous chemicals imports from 2006 to 2007, and increased them another 37.7 percent in 2008. France, on the other hand, decreased its purchases of Indiana miscellaneous chemicals by 61.7 percent in 2007, only to purchase 124.4 percent more in 2008 than in 2007.

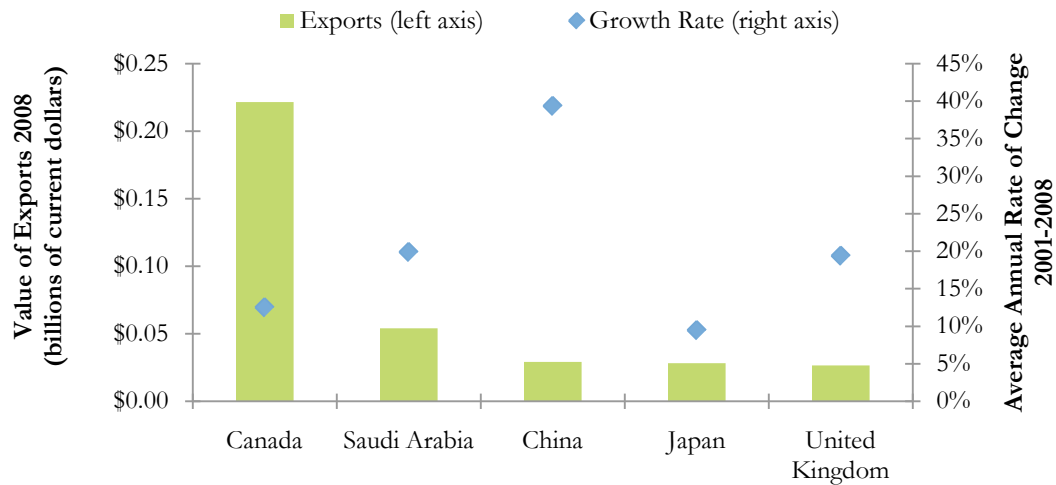
Figure 45: Indiana's Top Five Export Destinations for Miscellaneous Chemical Products



Aluminum Products

The top five destinations of Indiana's aluminum products, presented in **Figure 46**, account for 75.1 percent of Indiana's export market for aluminum products. Like many of Indiana's manufacturing export categories, Canada is the mega-market for aluminum products. Even with the large percentage changes of the smaller markets, their relatively small size makes it unlikely that any other country will challenge Canada's dominance as Indiana's primary market for aluminum product exports.

Figure 46: Indiana's Top Five Export Destinations for Aluminum Products

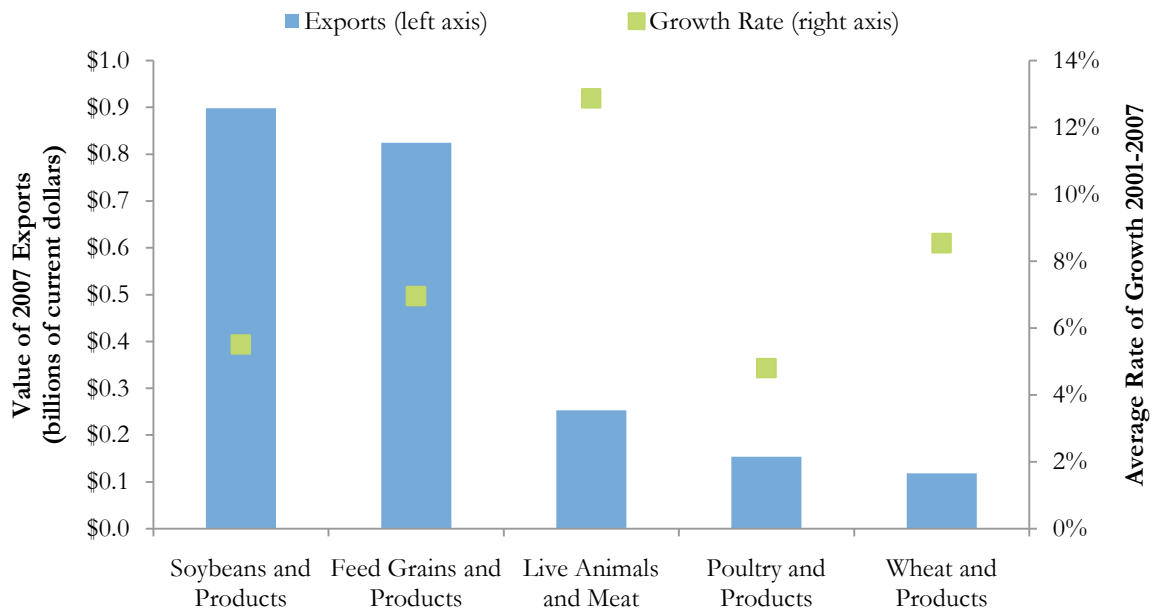


Agriculture

In addition to producing a wide array of manufactured goods, Indiana is also a major agricultural state. The Indiana Business Research Center, following the release of previous annual export reports, was often asked about the value of Indiana's exports of agricultural products. Agricultural commodities are not tracked by agencies that report the exports of goods and services. In large part, because agricultural goods are undifferentiated—one state's soybeans have the same characteristics as another's—agricultural exports are difficult, if not impossible, to trace back to source states.

Even so, the U.S. Department of Agriculture offers some estimates as to each state's contribution to national agriculture export sales. **Figure 47** highlights Indiana's largest agricultural exports for 2007, the most recent year for which data are available. Soybeans and products topped the list, totaling \$898 million. Feed grains and products were another large source of agricultural export revenue for the state, with \$824 million in 2007 sales. This category includes corn, Indiana's highest grossing agricultural product overall. The remaining three top export categories are not quite as significant in dollar terms, none of them grossing more than \$300 million. All categories experienced positive average annual growth between 2001 and 2007. Live animals and meat exports grew the fastest, at 12.8 percent.

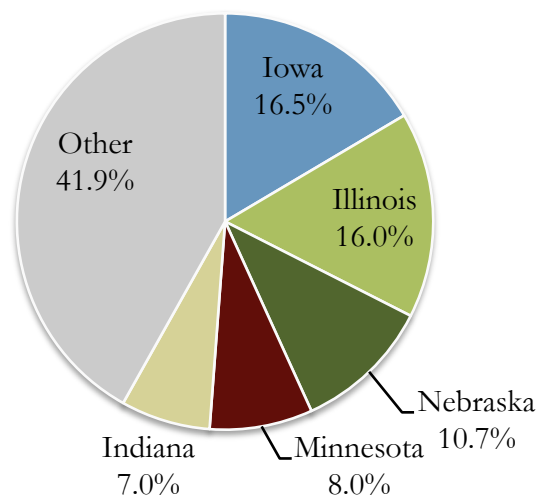
Figure 47: Indiana Agricultural Exports



Source: USDA Economic Research Service

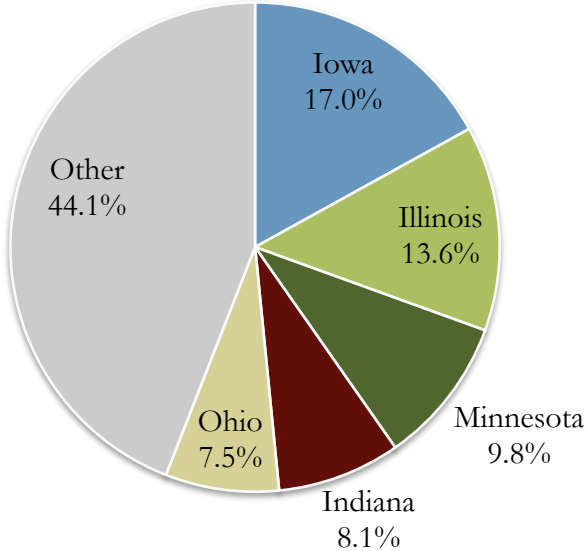
U.S. agricultural exports totaled \$81.9 billion. Indiana ranked 10th in agricultural exports among the states, at \$2.4 billion. In its top two commodities, however, Indiana ranked higher—fifth in feed grains and products, and fourth in soybeans and products. **Figure 48** and **Figure 49** show the distribution of sales among the top five exporting states for feed grains and soybeans, respectively. Not surprisingly, Iowa and Illinois lead in both categories.

Figure 48: Share of U.S. Feed Grains and Products Exports



Source: USDA Economic Research Service

Figure 49: Share of U.S. Soybean and Products Exports



Source: USDA Economic Research Service

Appendix: Indiana Exports for All Commodities

Rank	Description	Annual (in millions)		January-April (in millions)		Percent Change*		Commodity as a Percent of Total		Change (in millions)	
		2007	2008	2008	2009	2007- 2008	2008- 2009	2008	Jan- Apr 2009	2007- 2008	Jan- Apr 2009
	Total: All Commodities	\$25,956	\$26,507	\$8,697	\$7,001	2.1	-19.5	100.0	100.0	\$551	-\$1,696
1	Vehicles, Except Railway Or Tramway, And Parts Etc	\$6,559	\$5,719	\$2,108	\$1,033	-12.8	-51.0	21.6	14.8	-\$839	-\$1,075
2	Industrial Machinery, Including Computers	\$5,383	\$5,490	\$1,830	\$1,224	2.0	-33.1	20.7	17.5	\$107	-\$606
3	Pharmaceutical Products	\$1,902	\$2,426	\$699	\$1,254	27.6	79.2	9.2	17.9	\$524	\$554
4	Electric Machinery Etc; Sound Equip; Tv Equip; Pts	\$2,027	\$2,233	\$723	\$592	10.2	-18.1	8.4	8.5	\$206	-\$131
5	Optic, Photo Etc, Medic Or Surgical Instrments Etc	\$1,558	\$1,788	\$604	\$639	14.8	5.8	6.7	9.1	\$231	\$35
6	Organic Chemicals	\$1,656	\$1,428	\$375	\$405	-13.7	8.1	5.4	5.8	-\$227	\$30
7	Iron And Steel	\$858	\$992	\$263	\$204	15.6	-22.7	3.7	2.9	\$134	-\$60
8	Plastics And Articles Thereof	\$937	\$978	\$308	\$206	4.4	-33.2	3.7	2.9	\$41	-\$102
9	Miscellaneous Chemical Products	\$660	\$681	\$221	\$129	3.3	-41.8	2.6	1.8	\$22	-\$92
10	Aluminum And Articles Thereof	\$434	\$478	\$169	\$87	10.2	-48.2	1.8	1.2	\$44	-\$81
11	Articles Of Iron Or Steel	\$314	\$339	\$108	\$78	7.9	-27.1	1.3	1.1	\$25	-\$29
12	Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab Bd	\$324	\$323	\$100	\$91	-0.1	-8.8	1.2	1.3	\$0	-\$9
13	Printed Books, Newspapers Etc; Manuscripts Etc	\$266	\$294	\$87	\$89	10.5	1.8	1.1	1.3	\$28	\$2
14	Rubber And Articles Thereof	\$239	\$268	\$87	\$62	12.1	-28.1	1.0	0.9	\$29	-\$24
15	Nickel And Articles Thereof	\$186	\$224	\$86	\$59	20.5	-31.4	0.8	0.8	\$38	-\$27
16	Wood And Articles Of Wood; Wood Charcoal	\$234	\$208	\$75	\$48	-10.9	-36.3	0.8	0.7	-\$25	-\$27
17	Aircraft, Spacecraft, And Parts Thereof	\$188	\$208	\$76	\$159	10.4	108.3	0.8	2.3	\$20	\$82
18	Copper And Articles Thereof	\$135	\$156	\$54	\$32	15.7	-40.6	0.6	0.5	\$21	-\$22
19	Paper & Paperboard & Articles (Inc Papr Pulp Artl)	\$129	\$132	\$45	\$37	2.2	-17.7	0.5	0.5	\$3	-\$8
20	Glass And Glassware	\$174	\$131	\$45	\$28	-25.1	-37.7	0.5	0.4	-\$44	-\$17

Rank	Description	Annual (in millions)		January-April (in millions)		Percent Change*		Commodity as a Percent of Total		Change (in millions)	
		2007	2008	2008	2009	2007- 2008	2008- 2009	2008	Jan- Apr 2009	2007- 2008	Jan- Apr 2009
21	Albuminoidal Subst; Modified Starch; Glue; Enzymes	\$103	\$129	\$46	\$37	25.9	-19.3	0.5	0.5	\$27	-\$9
22	Miscellaneous Articles Of Base Metal	\$143	\$119	\$41	\$33	-17.1	-20.4	0.4	0.5	-\$24	-\$8
23	Ships, Boats And Floating Structures	\$97	\$113	\$46	\$13	16.4	-70.7	0.4	0.2	\$16	-\$33
24	Tanning & Dye Ext Etc; Dye, Paint, Putty Etc; Inks	\$88	\$112	\$32	\$30	27.1	-8.1	0.4	0.4	\$24	-\$3
25	Cereals	\$88	\$100	\$28	\$28	14.4	2.2	0.4	0.4	\$13	\$1
26	Special Classification Provisions, Nesoi	\$110	\$85	\$24	\$27	-23.0	10.1	0.3	0.4	-\$25	\$2
27	Base Metals Nesoi; Cermets; Articles Thereof	\$63	\$84	\$23	\$19	33.2	-17.0	0.3	0.3	\$21	-\$4
28	Meat And Edible Meat Offal	\$39	\$80	\$18	\$24	101.9	33.4	0.3	0.3	\$40	\$6
29	Food Industry Residues & Waste; Prep Animal Feed	\$66	\$79	\$20	\$29	20.0	41.8	0.3	0.4	\$13	\$9
30	Mineral Fuel, Oil Etc.; Bitumin Subst; Mineral Wax	\$61	\$78	\$27	\$17	28.9	-38.1	0.3	0.2	\$18	-\$10
Total of Top 30 Commodities		\$25,019	\$25,477	\$8,369	\$6,712	1.8	-19.8	96.1	95.9	\$457	-\$1,657

*Using the standard percent change formula, not rate of change as used elsewhere

Source: WISER Trade