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MassBenchmarks

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Massachusetts Export Trends – Why Is the State Missing Out on the Nation's Recent Export Boom?

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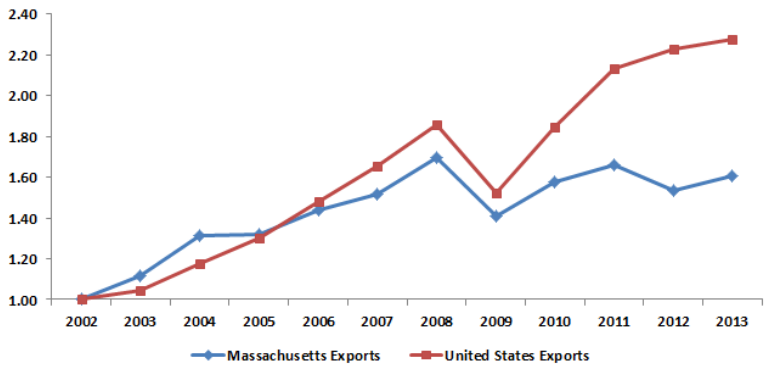
Introduction

Massachusetts largely kept up with the rapid pace of U.S. export growth between 2002 and 2008. During the 2000s expansion, Massachusetts exports increased by 70 percent, from $16.7 billion in 2002 to $28.4 billion in 2008. After a dramatic fall-off in international trade in 2009 that hit both the state's and nation's exports, the U.S. experienced a resounding rebound, quickly recovering in 2010 from 2009's low and then hitting new records in 2011, 2012, and 2013. In contrast, Massachusetts export growth since the recession has been anemic (see Figure 1). While U.S. exports surged by nearly 50 percent since the 2009 low, Massachusetts has seen growth of less than 14 percent. As of 2013, the state's exports still remained below the record high of $28.3 billion reached in 2008.[1]

During the 2009 to 2013 period, Massachusetts ranked 49th among the 50 states in export growth and saw its rank in total exports fall from 13th to 16th, displaced by Indiana, Tennessee, and North Carolina. Massachusetts exports have performed a bit stronger the past two years, with growth rates slightly above the U.S. growth in 2013 and year-to-date through September 2014,[2] but not nearly enough to close the gap shown in Figure 1. With exports not keeping up with the nation's, Massachusetts' "export intensity" (exports divided by gross domestic product) was 6.0 percent in 2013 compared to 9.5 percent for the United States. Prior to the recession, the Commonwealth's export intensity had been as high as 7.4 percent in 2008.

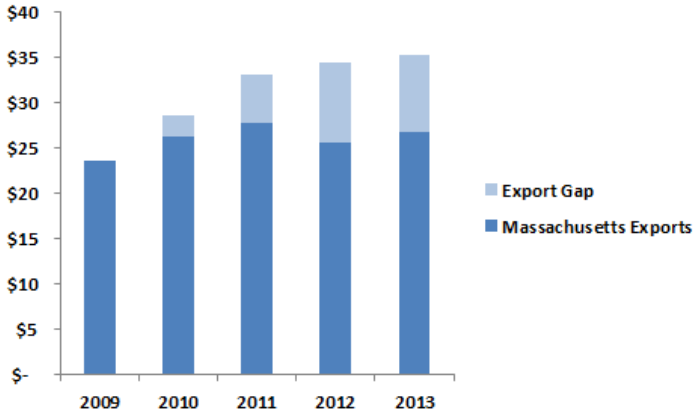
International trade is a key contributor to the Massachusetts economy and the relatively lackluster recent performance of the state's exports is a concern. If Massachusetts had kept pace with U.S. export growth since the recession, exports would have totaled $35.3 billion in 2013 (see Figure 2), some $8.5 billion higher than the actual figure. The overall purpose of this analysis is to understand recent Massachusetts trends in

Figure 1: Massachusetts' Export Growth Compared to the United States, 2002-2013
Export growth index, 2002=1.00



Source: WISERTrade; calculated by UMDI

Figure 2 Massachusetts Exports and Export Gap, 2009-2013
(in billions of dollars)



Source: WISERTrade; calculated by UMDI

exports and why they are not keeping up with the nation's. The export statistics shown in this report are based on the US Census Bureau's "Origin of Movement" (OM) data series and then tabulated by WISERTrade. The OM series is based on origin state and provides data on the location (typically a manufacturer or warehouse) from which a good (merchandise) begins its journey to the port of export.

Key points that are explained in the analysis include:

- Massachusetts has little or almost no presence in industries – primarily motor vehicles, petroleum and fuels – that are experiencing a boom in U.S. exports;
- Growth in precious metals and stones exports (i.e., gold and silver) is slower in Massachusetts but performance in global commodity exchanges should not be construed as a competitive weakness for the state;
- The state's lagging export performance cannot be simply blamed on the sluggish European economy, traditionally the top market for Massachusetts' exports;
- Massachusetts' exports would be substantially higher if services exports were measured (unavailable at the state level except through estimations); and
- Some improvements in overall export performance seen in 2013 and extending through September 2014 (the most recent data available as of this writing) indicate that Massachusetts export growth may be reviving.

The Massachusetts Export Gap Explained

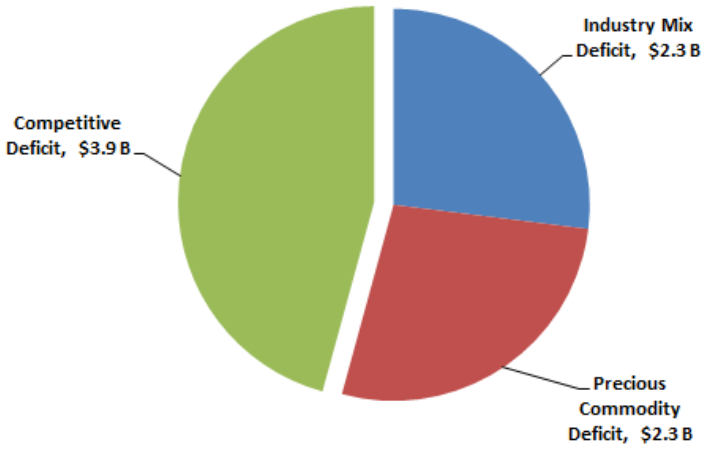
If Massachusetts exports had grown at the same rate as the nation's since 2009, they would have been $8.5 billion higher in 2013. This amount, $8.5 billion, represents the "export gap" between the state and the U.S. The root causes of this gap, or "deficit", can be attributed to three primary factors (and depicted in Figure 3):

(1) Industry mix deficit – exports not accruing to Massachusetts because state has a very small presence in major U.S. export growth industries (e.g., fuels and motor vehicles) total $2.3 billion.

(2) Precious commodity deficit – the gap due to Massachusetts precious metal and stone exports (includes gold and silver traded in global commodity markets) not keeping up with nation's amount to $2.3 billion.

(3) Competitive deficit – the gap in Massachusetts industry exports that is neither due to industry mix nor precious metals trading indicating a market share loss in international trade for several of the state's largest exporting industries amounting to $3.9 billion.

Figure 3. Massachusetts Export Gap by Type, 2013 (in billions of dollars)

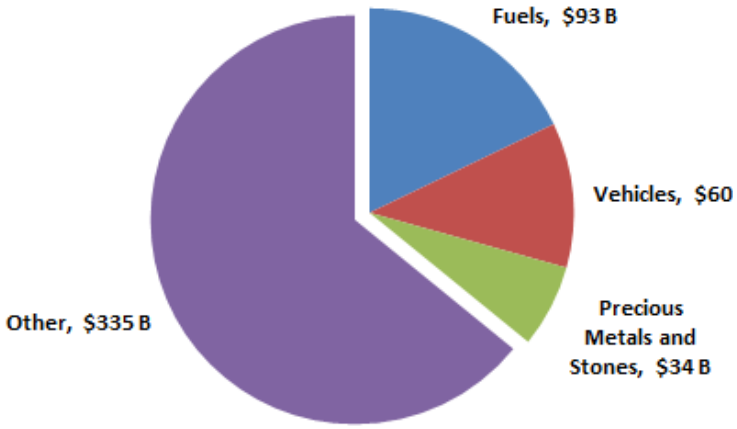


Source: WISERTrade; calculated by UMDI

Industry Mix and Precious Commodities Export Deficits

Massachusetts is neither a major producer nor exporter of the commodities driving much of the nation's recent growth in international trade. Fully one-third of US export growth since 2009 is in goods (fuels and motor vehicles) that are small contributors to the Massachusetts economy or largely related to global precious metals trading (see Figure 4).

Figure 4. Net Growth in U.S. Exports by Commodity, 2009-2013 *(in billions of dollars)*



Source: WISERTrade; calculated by UMDI

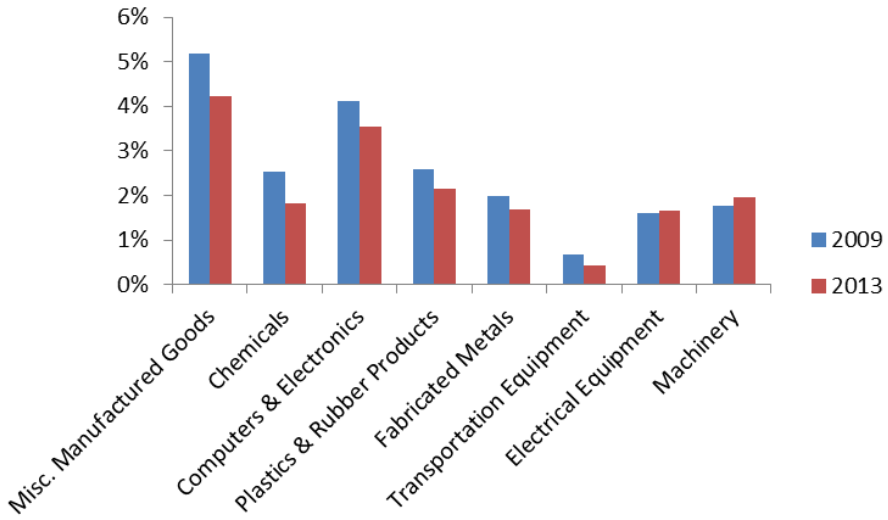
Combined, motor vehicles and fuels contributed $153 billion to U.S. export growth between 2009 and 2013. The expansion of vehicle exports was partly cyclical, explained by the recovery of the auto market and corresponding intra-NAFTA trade as well as a diversification of markets (e.g., higher demand in Asia). The rise in the nation's exports of fuels is more dramatic having increased ten-fold since the early 2000s. The availability of abundant, domestically produced shale oil has lowered costs for U.S. refiners and is pushing record international shipments of fuel products. These do not include exports of American crude petroleum which remains against U.S. law. In 2013, motor vehicles and fuels accounted for 8.5 percent and 9.4 percent, respectively, of total U.S. exports. By comparison, the two industries, *together*, accounted for not even 1 percent of Massachusetts exports and almost all of that was in vehicles (including motor vehicle parts). With little presence in motor vehicles and no petroleum refining operations in Massachusetts, the state did not participate in the strong growth in international demand for these types of products.

Precious metals and stones (gold, silver, diamonds, etc.) is a large-scale export for both Massachusetts and the United States. It is the 4th largest exporting industry ($3.3 billion in 2013) in Massachusetts and has seen solid growth for nearly a decade. Even with significant growth, however, Massachusetts has still not kept up with national increases since 2009. The state's exports in precious commodities, however, should not be construed as either a relative strength or a weakness as international transactions of these high-value products are driven by commodity trading and are thus not a fair barometer of Massachusetts' overall performance in international trade.

The Competitive Deficit in Massachusetts Exports

Even with motor vehicles, fuels, and precious commodities excluded, Massachusetts recent export performance remains modest compared to the United States. The exclusion of these three export industries raises Massachusetts growth from 13.5 to 14.4 percent and lowers U.S. growth from 49.5 to 37.7 percent for the 2009 to 2013 period. The discrepancy indicates that Massachusetts, beyond missing out on U.S. growth in motor vehicles and fuel exports, is also seeing some erosion in the export performance of several industries that are major contributors to the state economy.

Figure 5. Massachusetts Share of U.S. Exports by Industry, 2013 Compared to 2009



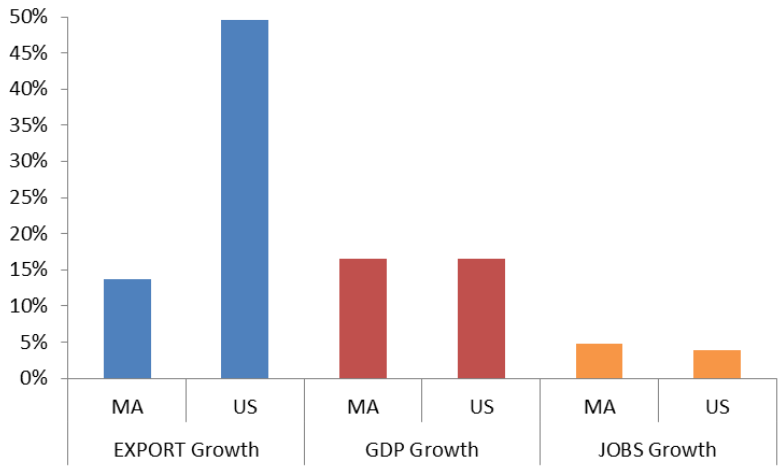
Source: WISERTrade; calculated by UMDI (sorted from left to right based on loss in US share of industry exports, 2009-2013)

Among Massachusetts top export industries,[3] only electrical equipment (e.g., lighting, electric motors, batteries) and machinery (printing machinery, semiconductor manufacturing equipment, pumps, turbines,

HVAC equipment, etc.) garnered a greater share of U.S. exports between 2009 and 2013 (see Figure 5). Miscellaneous manufactured goods (includes medical equipment, silverware, athletic equipment, etc.) experienced the sharpest loss in share among Massachusetts industries, while other large-scale Massachusetts exporting industries, including chemicals (pharmaceuticals, organic and inorganic chemicals),[4] computers and electronics, plastics and rubber products, and transportation equipment also saw substantial declines in their respective shares of U.S. industry exports.

The drop off in Massachusetts' share of miscellaneous manufactured goods exports came from lagging growth to Asia, a market that boomed for the U.S. in this industry between 2009 and 2013. The poor relative performance of Massachusetts chemical exports, on the other hand, was due to a sharp decline to Europe, a market that grew for the U.S. in that industry between 2009 and 2013. Computers and electronics, Massachusetts' largest exporting industry based on dollar value ($7.3 billion in 2013), also lost share despite moderate growth, 2009 to 2013, largely due to not participating fully in a surge of U.S. exports to Asia in this industry. Through the middle of 2014, the state has been showing signs of regaining some momentum in computers and electronics shipments to Asia. Overall, however, the industry data suggest that Massachusetts exports are being held back by not fully participating in the U.S. export surge to the expanding Asian economy.

Figure 6. Massachusetts Lagging Export Growth Is Not Reflective of the State's Overall Economic Performance, 2009-2013



Sources: WISERTrade, Bureau of Economic Analysis, and Bureau of Labor Statistics
Note: Export and GDP growth are both shown in nominal dollars (not inflation adjusted)

Of note, the export performance of Massachusetts industries since 2009 does not match-up with their recent economic performance or with the state's economy overall (as measured by GDP and jobs) as shown in

Figure 6. For instance, employment in the medical equipment industry (a component of life sciences) in Massachusetts grew by 4 percent between 2009 and 2013 while the U.S. lost jobs (-0.5 percent). During the same period, Massachusetts lost ground in the broader export category, miscellaneous manufactured goods, that includes medical equipment. Overall, Massachusetts outperformed the U.S. in both GDP and jobs growth in the miscellaneous manufactured goods industry during the 2009-2013 period despite substantially lower growth in exports. Similarly, in computer equipment and electronics, Massachusetts underperformed the U.S. in terms of export growth but outperformed the country based on growth in gross domestic product (GDP) for the industry. Both the state and the country lost jobs in this industry between 2009 and 2013.

These data suggest that Massachusetts industries may be achieving a greater relative share of their growth through domestic markets rather than expanding overseas, and that several of the state's leading industries like medical equipment and computers and electronics may not be expanding into Asia as quickly as other states with closer proximity to the Pacific.

Services Exports

The state-level export statistics emphasized in this analysis are for merchandise trade (i.e., manufactured, agricultural, fishery, and mineral products transported from the U.S. to foreign markets by land, sea, and air). Unlike merchandise trade, international trade in services is solely tabulated at the U.S. level. However, given the recognized international demand for Massachusetts' finance, research, legal, information, consulting, educational, medical, and engineering services, the state's services exports are likely quite substantial. Indeed, based on estimates from the Brookings Institute, Massachusetts services industry exports were approximately $18.6 billion in 2012.[5]

The Brookings Institute's state-level services exports are derived from an allocation of U.S. exports based on state shares of national services industry output. Brookings focuses solely on export-oriented service industries based on national data such as legal, financial, engineering services and travel and tourism. Hence, the Brookings service export data is more reflective of overall industry performance and size rather than an actual export figure. Basically, if Massachusetts is doing well in services output (and our industry mix in this is favorable) and overall U.S. services exports (which *are* tabulated) are expanding, then the state will do relatively well in services exports, as well.

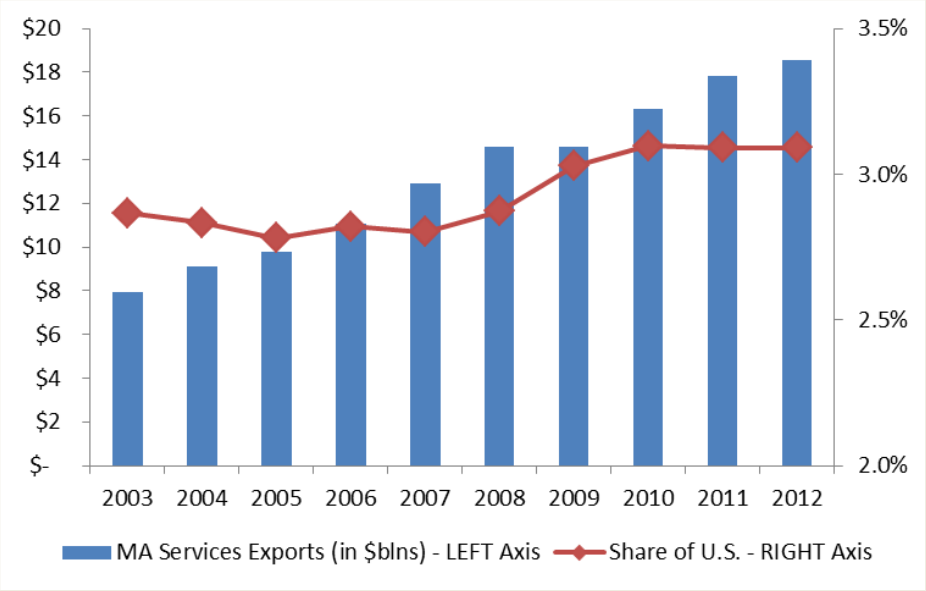
As shown in Figure 7 on the next page, trends in Massachusetts service industry exports are favorable, showing considerable growth since 2003 coinciding with a gradual increase in the state's share of the U.S. total. Not surprisingly, given the services orientation of the Massachusetts economy, the "export intensity" (exports' share of GDP) of the state's services exports (an estimated 4.5 percent of gross state product in 2012) is higher than the average for the United States (3.9 percent of GDP). This is in contrast to the state's

lower export intensity relative to the country's in merchandise exports (6.0 percent for Massachusetts versus 9.5 percent for the U.S. in 2013).

Brookings data estimates that the top service exporting industries in Massachusetts are financial services, research and development (R&D) services, information technology (IT) and computer royalties, educational services (includes revenue from international students attending Massachusetts colleges and universities),

and management consulting. These leading service sectors contribute to Massachusetts eighth-place ranking in the country in terms of total service exports.

Figure 7. Brookings Institute Estimate of Massachusetts Services Exports and Share of U.S., 2003-2012



Source: Brookings Institute (estimate)

Massachusetts Exports by World Region

Although Massachusetts export *volumes* are rising or remaining steady to most major regions, with the exception of Europe, the state's *share* of U.S. exports to most regions is eroding. Other than Mexico and Australia, Massachusetts' share of U.S. exports to all other major world regions declined between 2009 and 2013. Massachusetts exports to Europe declined by $1.3 billion between 2009 and 2013 (see Figure 8) and the state lost nearly a percentage point in market share over the same 4 year period. The state's strong growth in exports to Asia, 40 percent since a trough in 2009, while impressive on the surface, are still below the nation's 53 percent growth. Likewise, Massachusetts has been losing share to other key world markets including Canada, the Middle East, Latin America, and Africa (see Figure 9). Even with the removal of fuel

products, motor vehicles, and precious commodities from the trade mix, Massachusetts is still seeing its share of total U.S. exports to each of these markets decline.

Figure 8. Massachusetts Exports by World Region
(in billions of dollars)

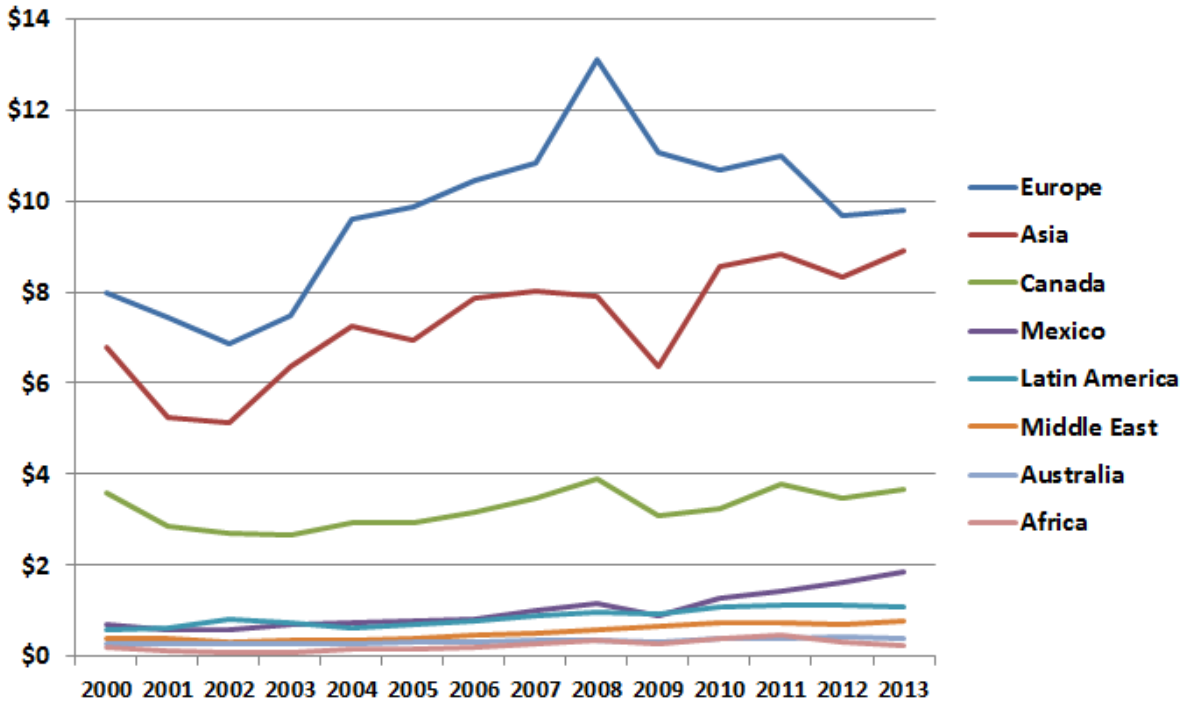
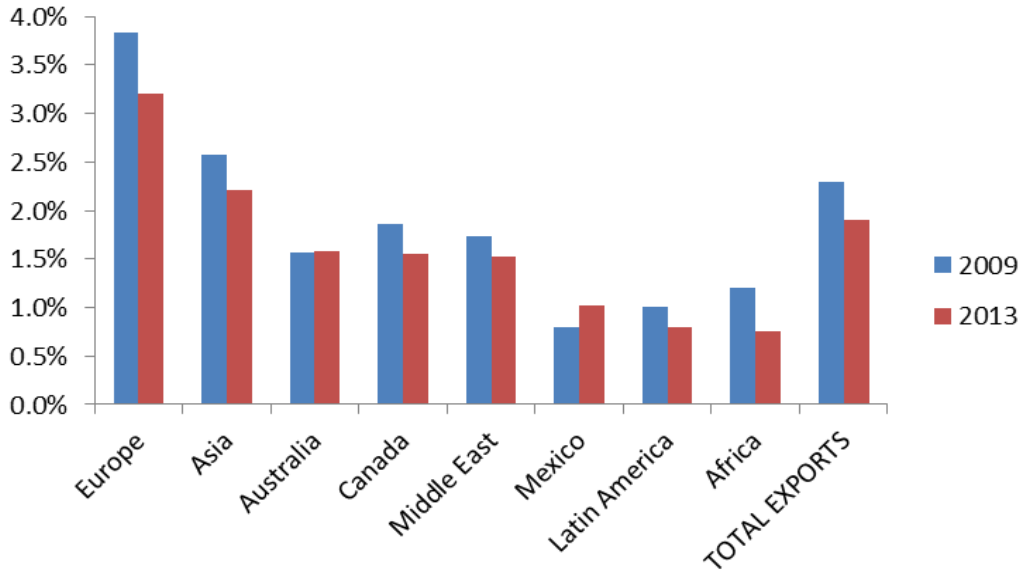


Figure 9. Massachusetts Share of U.S. Exports by World Region, 2009 and 2013



Source: WISERTrade; calculated by UMDI (excludes fuels, motor vehicle, and precious metals/stones exports)

2014 Exports and Concluding Thoughts

Massachusetts exports hit a record $28.3 billion in 2008 but growth since then, as pointed out in this analysis, has not kept up with the United States. However, as we head into the latter part of 2014, there have been some signs of improvement. In 2013 and through the first nine months of 2014, Massachusetts has been outperforming the nation by a narrow margin in export growth. Should the pace of this growth be sustained through the remaining months of the year, Massachusetts exports will exceed 2008's and hit a new record in 2014.[6] The recent upturn in exports was led by the electrical equipment and computers and electronics industries as well as a resurgence in precious metals (i.e., gold and silver) shipments which tend to be volatile as they are exchanged on world commodity markets. Geographically, exports to Europe and Mexico have led the recent improvements. However, much of the growth to Europe is skewed by the trade in precious commodities. Countering these advancements, Massachusetts lost traction in exports to Asia, a critical long-term growth market, both for the state and the country.

In summary, Massachusetts has experienced sluggish export growth over the past five years, significantly trailing U.S. trends. And counter to commonly held perceptions, this export gap can only partially be attributed to slow economic growth in Europe and our lack of energy-related product exports. Rather, the $8.5 billion export deficit is also caused in large part by our relatively slower growth in exports to Asian markets and a loss of market share in U.S. exports for key sectors such as medical instruments, chemicals, plastics and rubber products, and computer and electronics. This is a somewhat counterintuitive data finding as the Massachusetts economy has generally performed as well as the U.S. in gross domestic product (GDP) and more strongly in job growth over this period. Although additional research needs to be conducted, possible explanations for this discrepancy include Massachusetts firms shifting to more domestic trading partners, and a shift from export "products" to R&D and more services-oriented economic activity.

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Endnotes

1.) All dollar values presented in this report are *nominal* and thus have not been adjusted for inflation.
2.) Massachusetts exports grew by 4.7% in 2013 compared to 2.2% growth for the U.S., and have grown by 4.2% so far in 2014 (through September) compared to 3.4% for the U.S.
3.) Massachusetts' top 5 exporting industries in 2013 were computers and electronics, chemicals, miscellaneous manufactured goods, machinery, and primary metals (includes gold).
4.) The continued growth of the life sciences and bio-tech industry in Massachusetts, most pronounced in the Kendall Square area, has largely been focused on growth in research and development (R&D) rather than pharmaceutical manufacturing and products.
5.) See http://www.brookings.edu/research/interactives/export-nation for state and metro area data on service exports.
6.) This would reflect a new all-time high in *nominal* exports for Massachusetts, meaning that the dollar value of exports reported here are based on actual trade transactions, and thus are not adjusted for inflation.