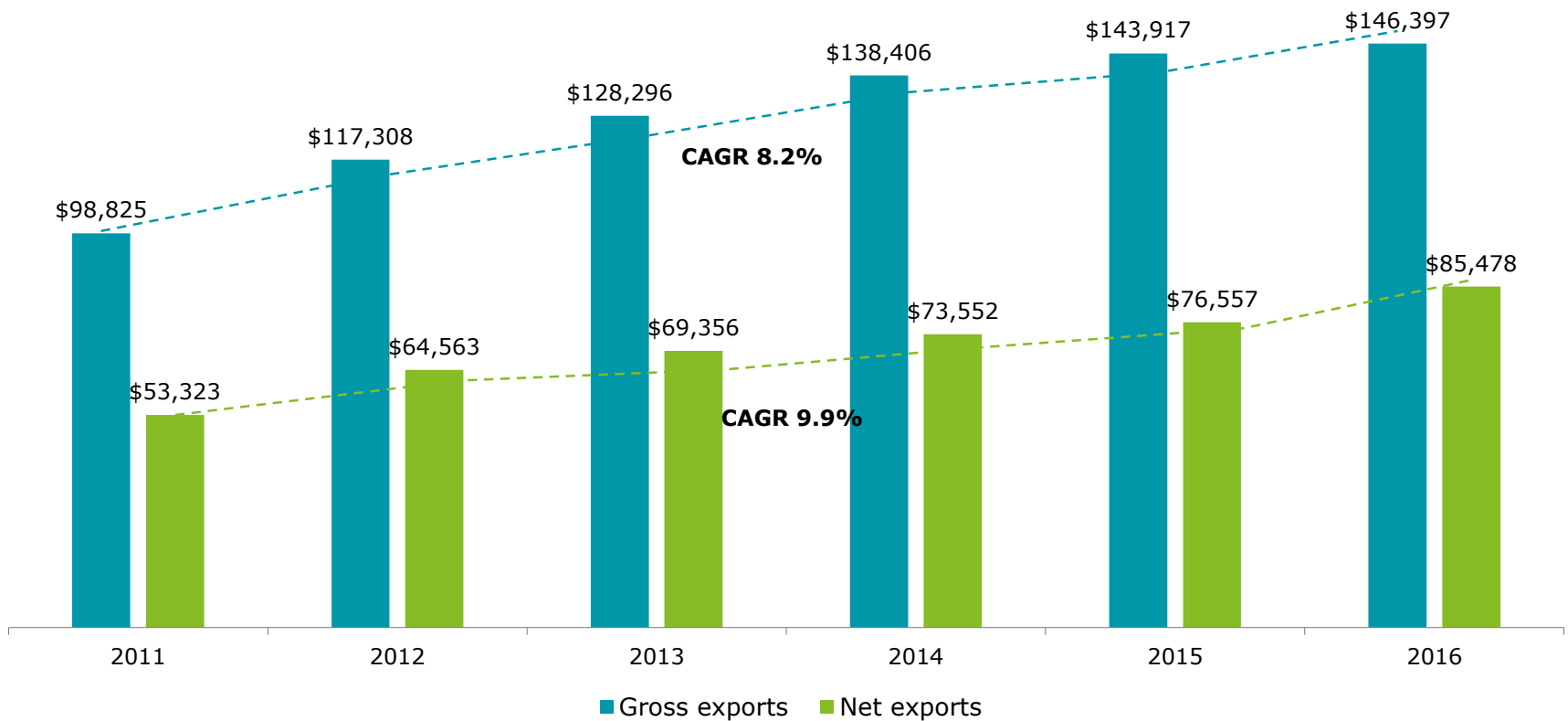




2017 US aerospace and defense exports and labor market

Exports and employment levels experience
declining growth, outlook for further challenges

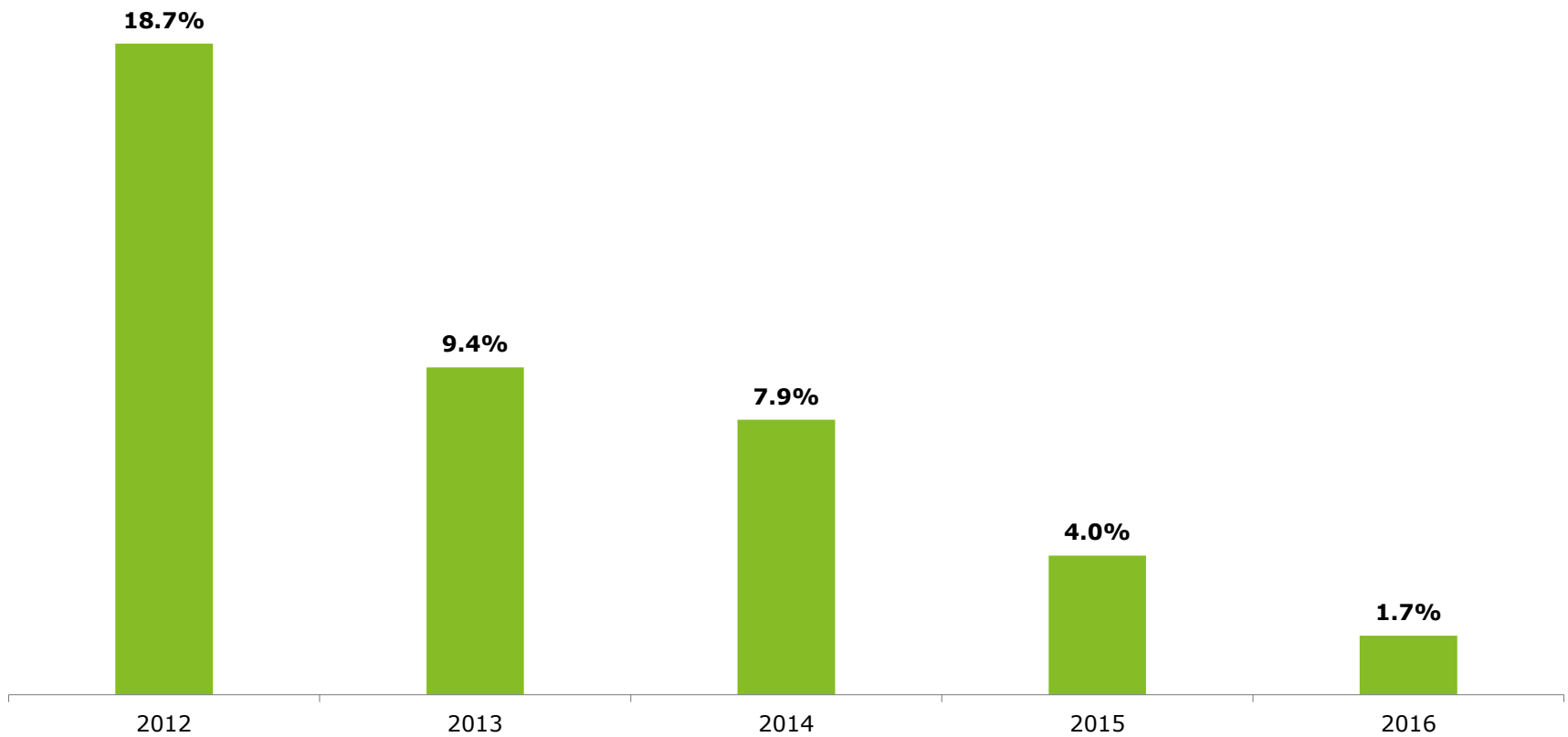
Figure 1. US aerospace and defense sector gross and net exports: 2011–2016 (USD millions)



Source: Deloitte analysis based on data from United States Census Bureau

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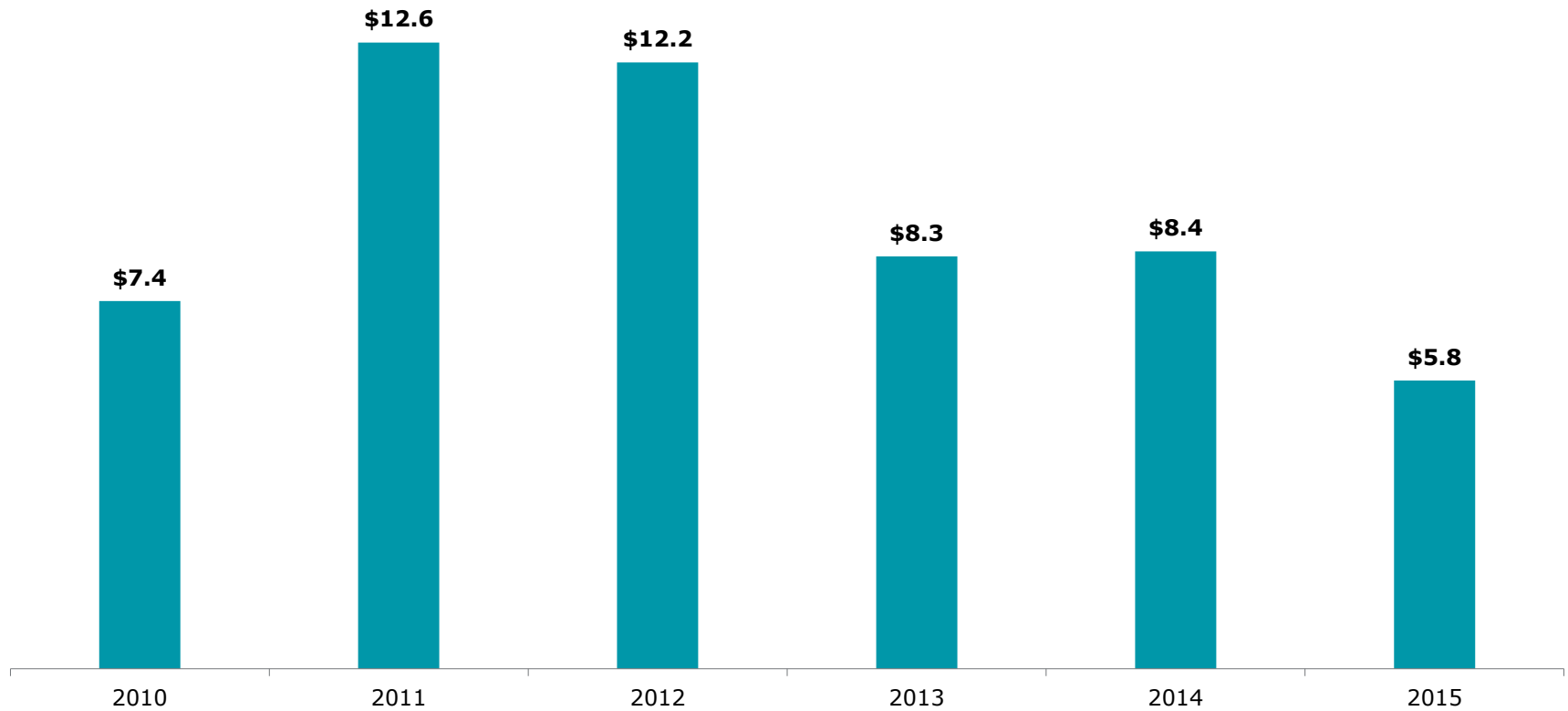
Figure 2. US aerospace and defense export growth, year over year: 2011–2016



Source: Deloitte analysis based on data from United States Census Bureau

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Figure 3. US Ex-Im Bank's financing authorization for aircraft and avionics (USD billions)



Source: Export-Import Bank of the United States, annual reports (2010–2016)

Figure 4. US aerospace and defense sector exports by category, 2011 and 2016 (USD millions)

Product category	Exports		% of total A&D	5-year growth	5-year CAGR
	2011	2016			
Civilian aircraft, engines, equipment, and parts	\$80,353	\$120,784	82.5%	50.3%	8.5%
Military aircraft, engines, equipment, and parts	\$8,877	\$12,795	8.7%	44.1%	7.6%
Search, detection, and navigation instruments	\$3,843	\$3,950	2.7%	2.8%	0.6%
Missiles, space vehicles, propulsion units, equipment, and parts	\$347	\$3,031	2.1%	774.4%	54.3%
Small arms, ammunition, and other ordnance and accessories	\$3,898	\$2,745	1.9%	-29.6%	-6.8%
Military armored vehicle, tanks, and tank components	\$1,003	\$1,730	1.2%	72.6%	11.5%
Ships	\$504	\$1,362	0.9%	170.0%	22.0%
Total	\$98,825	\$146,397	100.0%	48.1%	8.2%

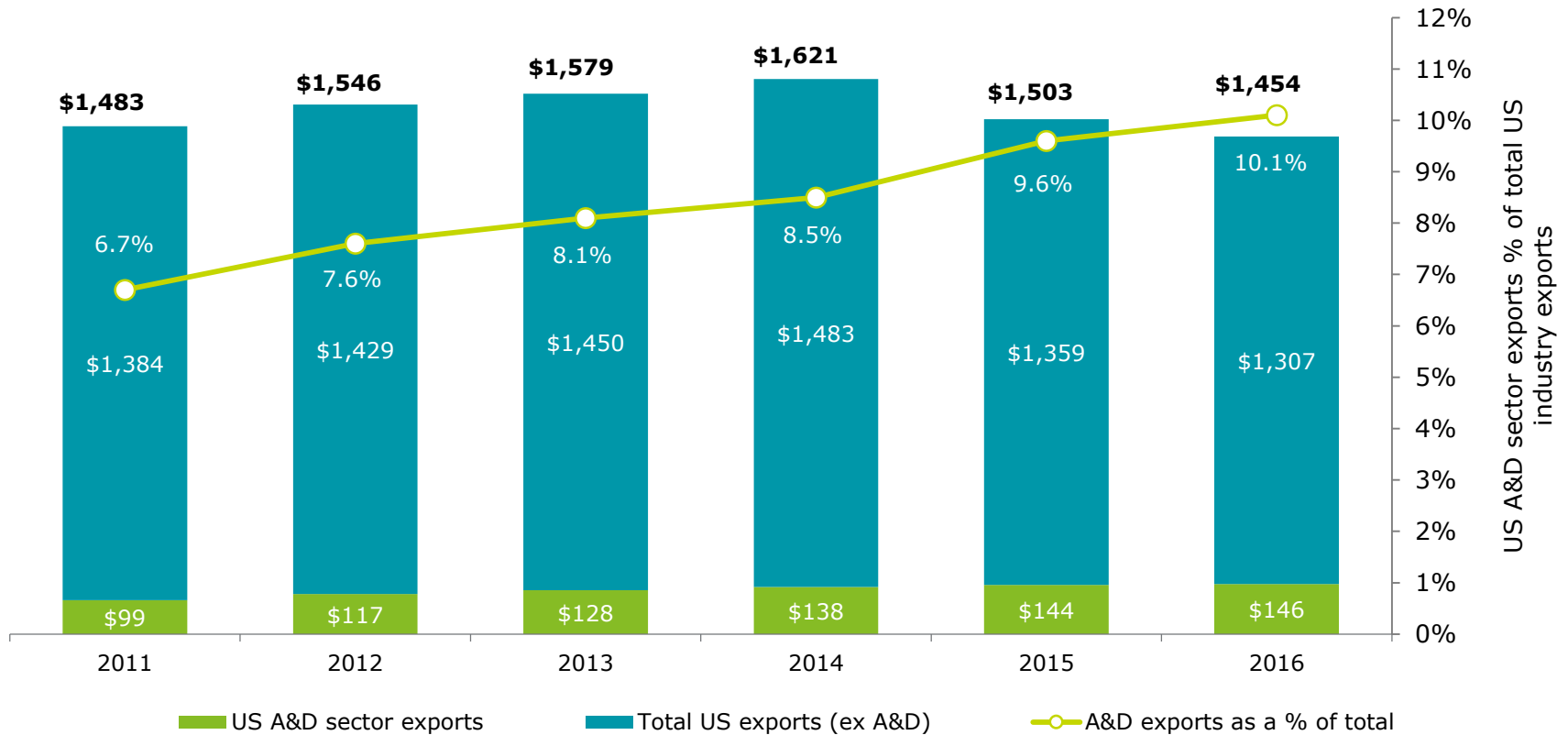
Source: Deloitte analysis based on data from United States Census Bureau

Figure 5. US aerospace and defense sector imports by category, 2011 and 2016 (USD millions)

Product category	Imports		% of total A&D	5-year growth	5-year CAGR
	2011	2016			
Civilian aircraft, engines, equipment, and parts	-	-	-	n/a	n/a
Military aircraft, engines, equipment, and parts	\$35,797	\$49,782	81.7%	39.1%	6.8%
Search, detection, and navigation instruments	\$5,716	\$7,646	12.6%	33.8%	6.0%
Missiles, space vehicles, propulsion units, equipment, and parts	\$279	\$581	1.0%	108.3%	15.8%
Small arms, ammunition, and other ordnance and accessories	\$2,664	\$2,131	3.5%	-20.0%	-4.4%
Military armored vehicle, tanks, and tank components	\$932	\$279	0.5%	-70.1%	-21.4%
Ships	\$114	\$501	0.8%	338.6%	34.4%
Total	\$45,502	\$60,919	100.0%	33.9%	6.0%

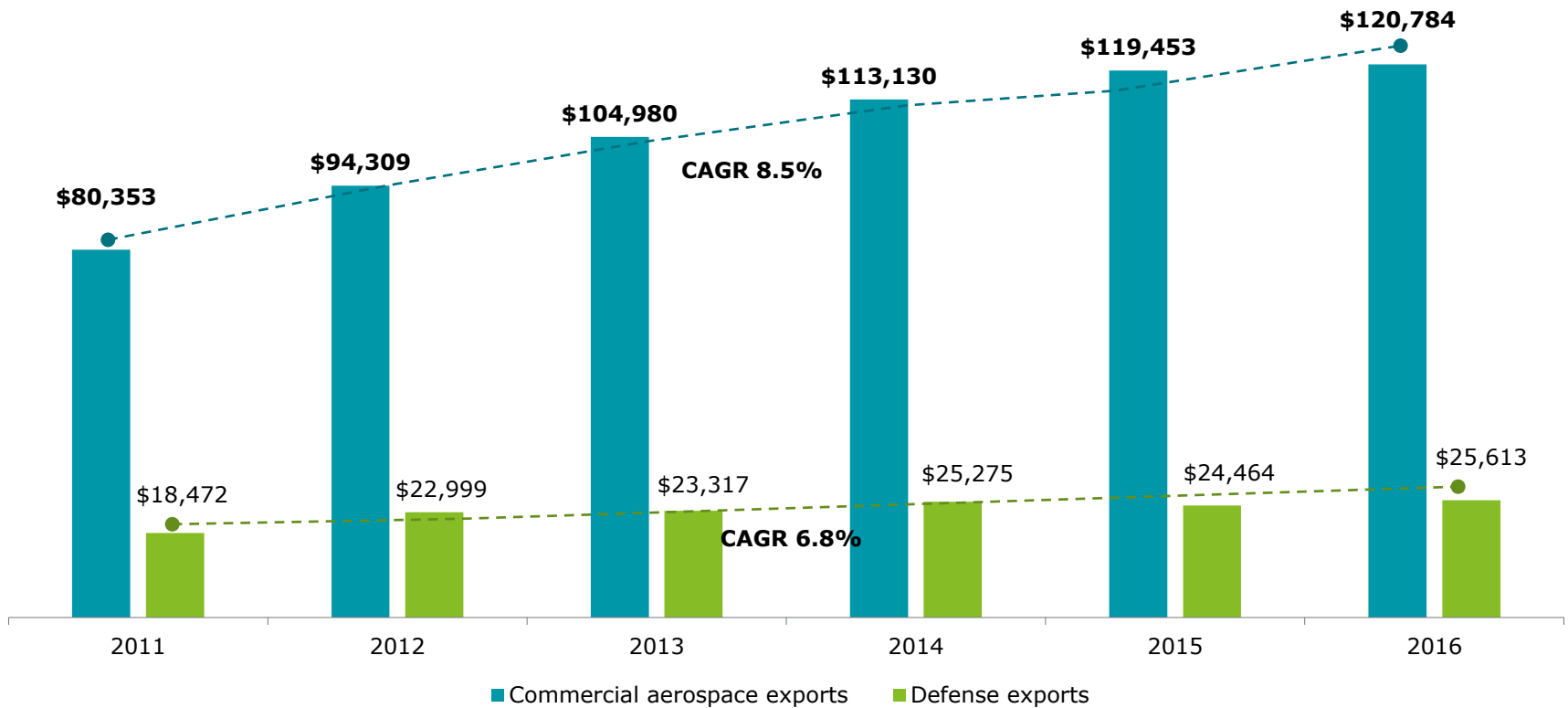
Source: Deloitte analysis based on data from United States Census Bureau

Figure 6. US aerospace and defense sector contribution to total US exports: 2011–2016 (USD billions)



Source: Deloitte analysis based on data from United States Census Bureau

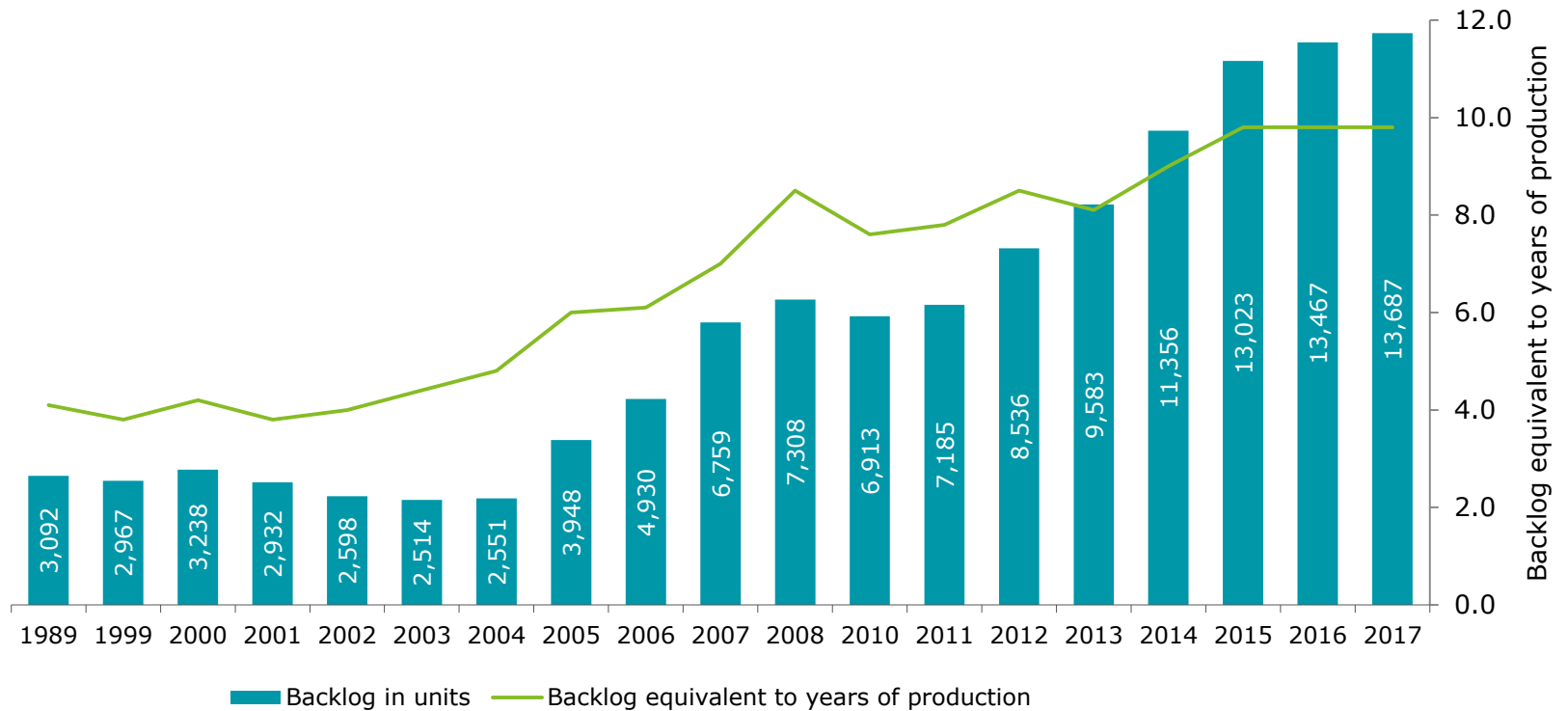
Figure 7. US commercial aerospace versus defense gross exports: 2011–2016 (USD millions)



Source: Deloitte analysis based on data from United States Census Bureau

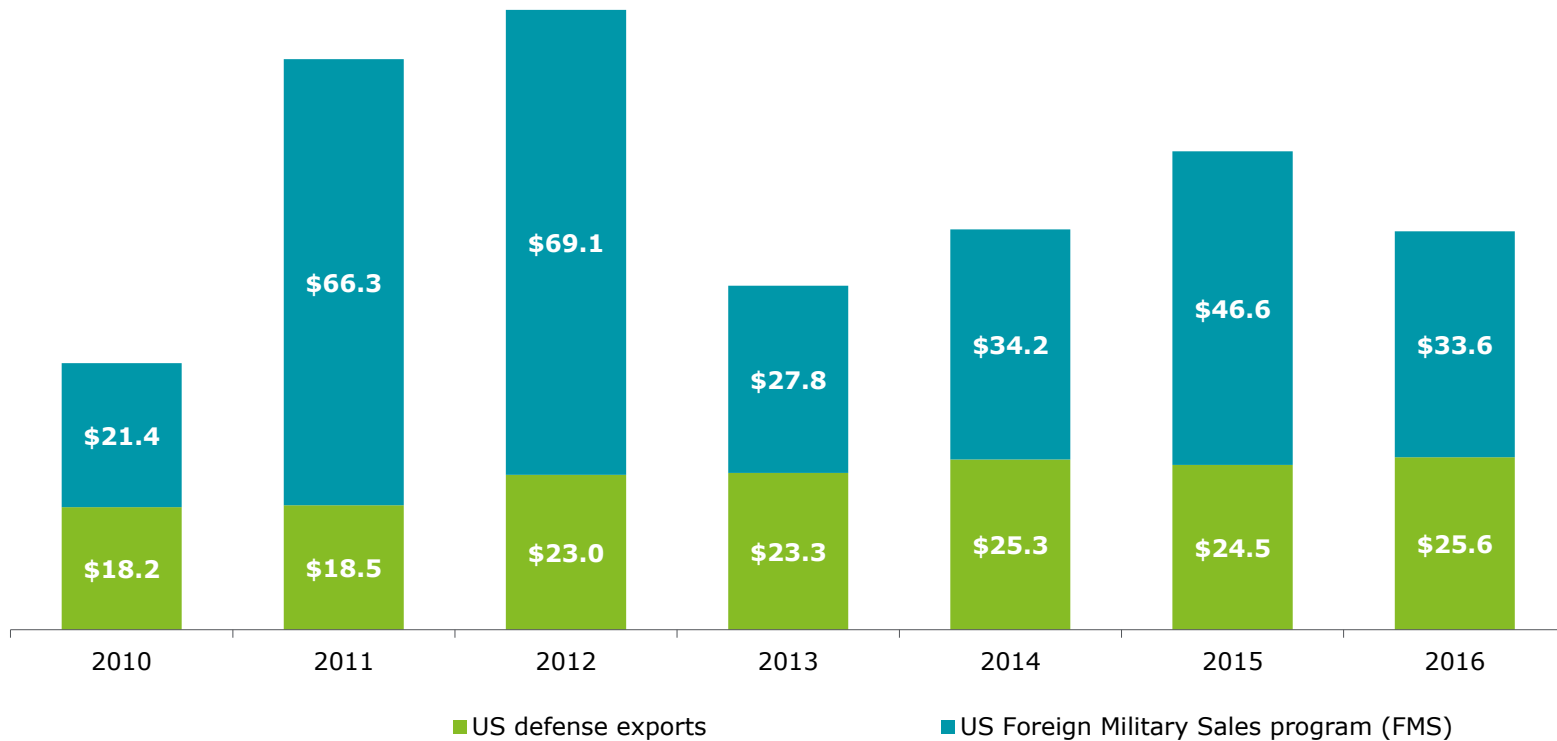
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Figure 8. Global aircraft production backlog (units): 1998–2016



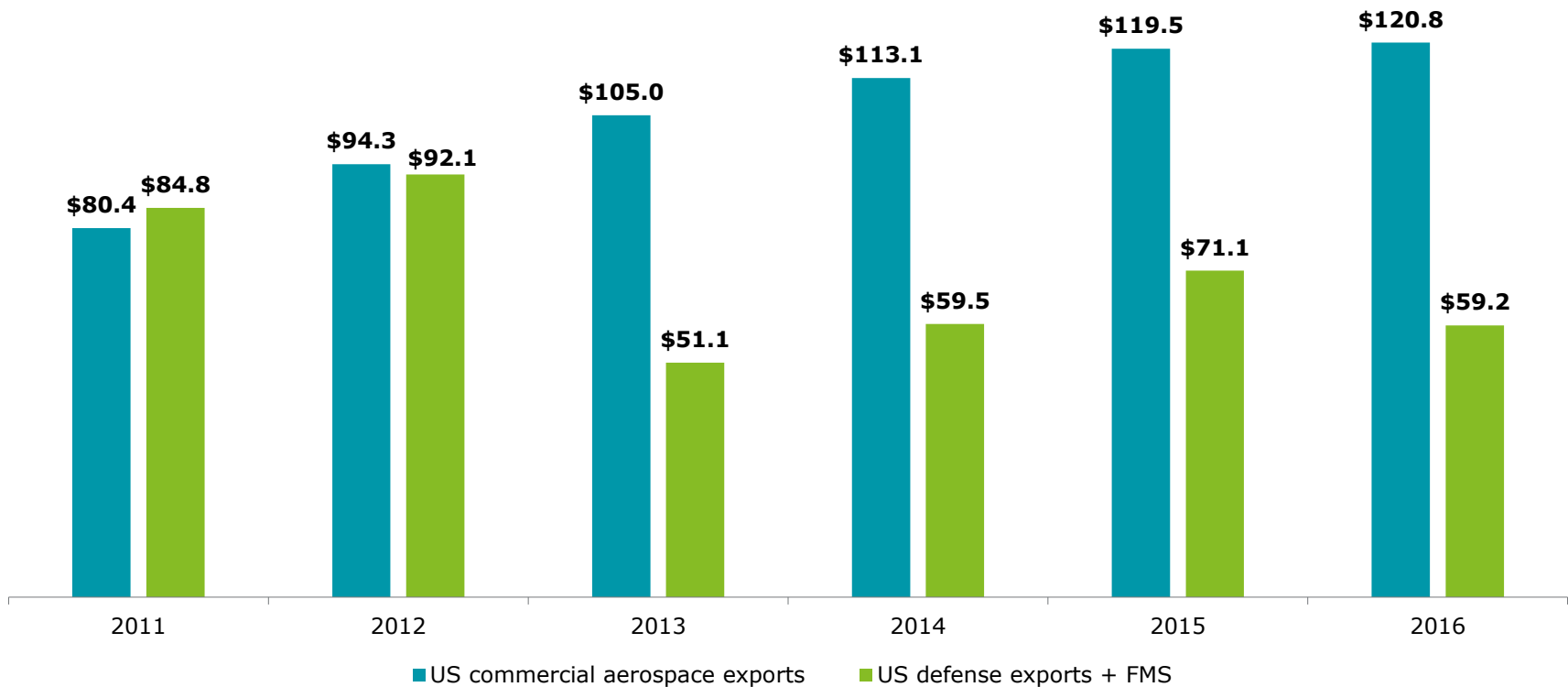
Source: Deloitte analysis based on data from Airbus, Boeing, Bombardier, FlightGlobal

Figure 9. US defense gross exports and Foreign Military Sales: 2011–2016 (USD billions)



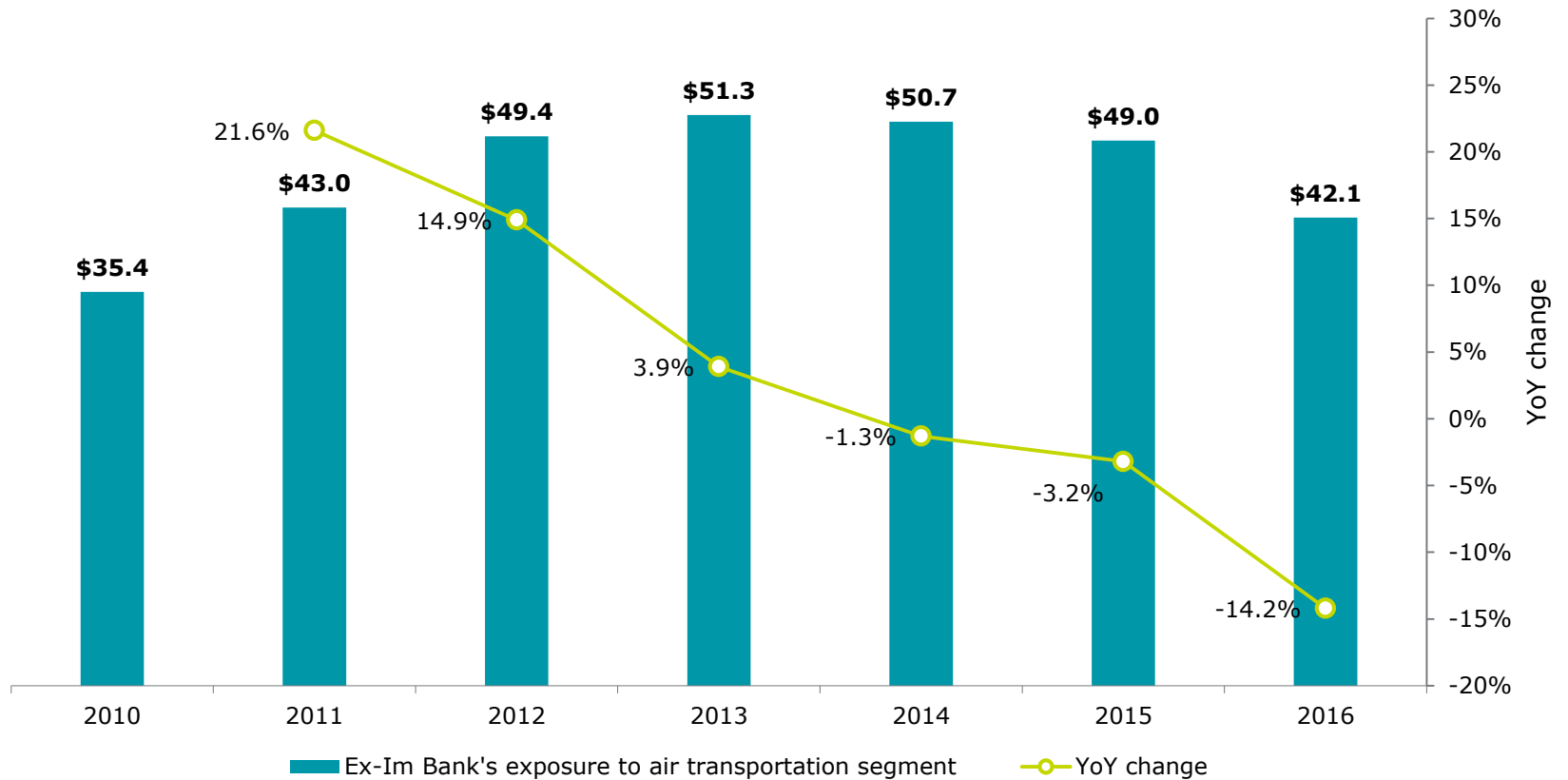
Source: Deloitte analysis based on data from United States Census Bureau, Defense Security Cooperation Agency (DSCA), *New York Times*, "US Arms Sales Make Up Most of Global Market," August 2012

Figure 10. US commercial aerospace versus defense exports with Foreign Military Sales: 2011–2016 (USD millions)



Source: Deloitte analysis based on data from United States Census Bureau, Defense Security Cooperation Agency (DSCA), *New York Times*, "US Arms Sales Make Up Most of Global Market," August 2012

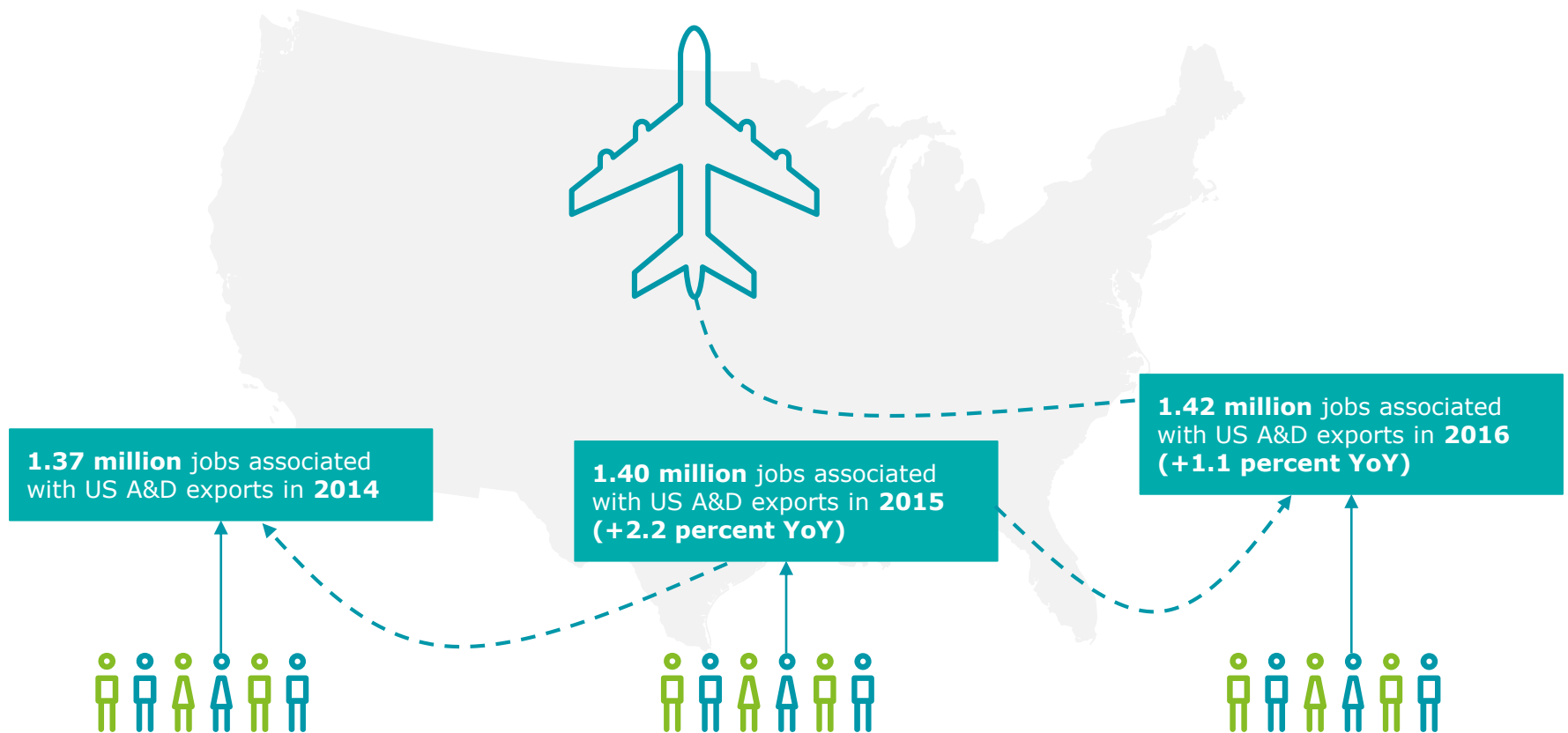
Figure 11. US Ex-Im Bank exposure to air transportation segment: 2010–2016 (USD billions)



Source: Export-Import Bank of the United States

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Figure 12. Employment associated with US aerospace and defense exports



Source: Deloitte analysis based on data from Bureau of Labor Statistics, US Office of Personnel Management, US Census Bureau

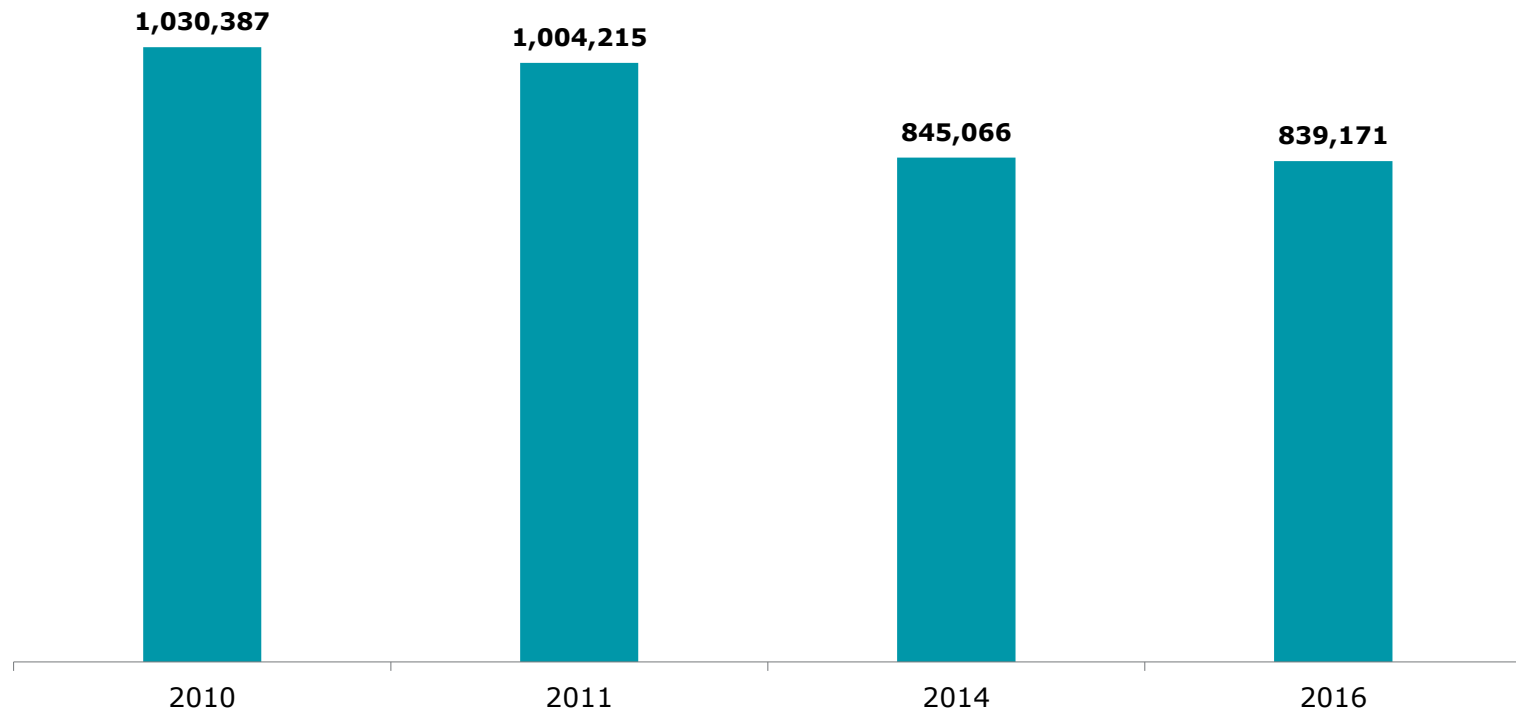
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Figure 13. Total direct and indirect aerospace and defense sector employment (2011 and 2016)

Aerospace and defense sector employment metrics	2011	2016	% change	Trend
Direct commercial aerospace subsector employment	322,336	384,818	19.4%	↑↑
Direct defense subsector employment	1,004,215	839,171	-16.4%	↓↓
Total direct employment	1,326,551	1,223,989	-7.7%	↓↓
Total indirect employment	3,130,661	2,888,614		
Total direct and indirect employment	4,457,213	4,112,603	-7.7%	↓↓

Source: Deloitte analysis based on data from Bureau of Labor Statistics, US Office of Personnel Management, US Census Bureau, Bureau of Economic Analysis

Figure 14. Employment associated with US defense subsector



Source: Deloitte analysis based on data from Bureau of Labor Statistics, US Office of Personnel Management, US Census Bureau

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Figure 15. Direct employment by aerospace and defense sector classification (2011–2016)

Subsector	2011	2012	2013	2014	2015	2016	Changes in employment from 2011 to 2016	Changes in employment from 2013 to 2016
Aerospace products and parts manufacturing	668,357	657,846	645,030	621,757	619,384	617,420	(50,937)	(27,610)
Aerospace and defense related services	325,695	317,329	316,149	303,409	302,251	301,293	(24,402)	(14,856)
Manufacture of search, detection, navigation, guidance, aeronautical and nautical systems and instruments	189,541	176,541	164,428	173,866	173,202	172,653	(16,888)	8,225
Establishments engaged in operating a shipyard	89,909	91,867	90,519	85,906	85,578	85,307	(4,602)	(5,212)
Military land vehicles manufacturing	21,717	19,535	15,304	18,602	18,531	18,472	(3,245)	3,168
Ammunition manufacturing except small arms	13,690	13,073	12,399	12,580	12,532	12,493	(1,197)	94
Radio and television broadcast and wireless communication equipment	9,227	8,532	7,840	8,311	8,279	8,253	(974)	412
Ordnance manufacturing	7,945	7,671	7,483	7,719	7,690	7,666	(279)	183
Small firearms manufacturing	256	268	308	245	244	243	(13)	(65)
Small arms ammunition manufacturing	216	194	194	192	191	190	(26)	(4)
Grand total	1,326,551	1,292,857	1,259,653	1,232,587	1,227,882	1,223,989	(102,562)	(35,664)

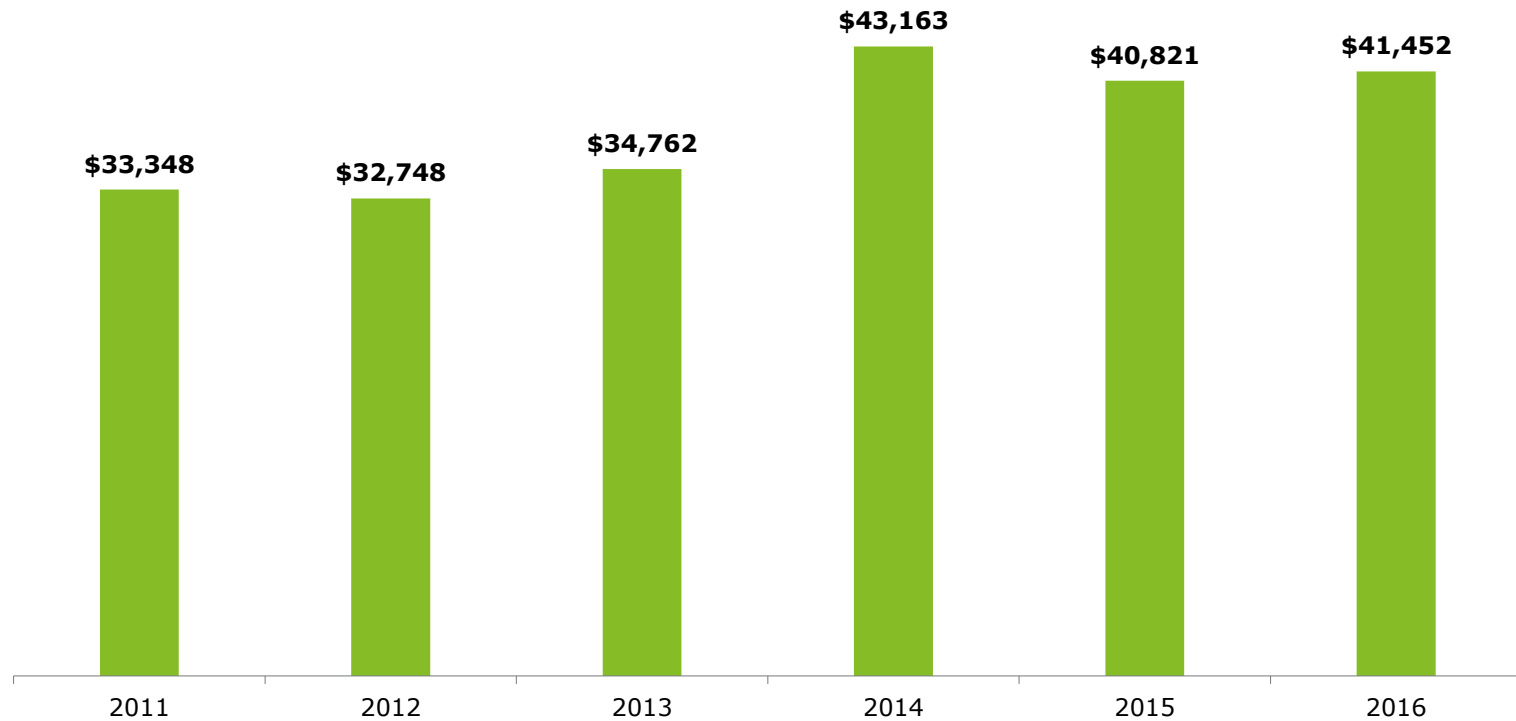
Source: Deloitte analysis based on data from Bureau of Labor Statistics, US Office of Personnel Management, US Census Bureau

Figure 16. Direct employment growth by aerospace and defense sector classification

Subsector	%CAGR 2011–2016	%CAGR 2013–2016
Aerospace products and parts manufacturing	-1.57%	-1.45%
Aerospace and defense related services	-1.55%	-1.59%
Manufacturing of search, detection, navigation, guidance, aeronautical and nautical systems and instruments	-1.85%	1.64%
Establishments engaged in operating a shipyard	-1.05%	-1.96%
Military land vehicles manufacturing	-3.18%	6.47%
Ammunition manufacturing except small arms	-1.81%	0.25%
Radio and television broadcast and wireless communication equipment	-2.21%	1.72%
Ordnance manufacturing	-0.71%	0.81%
Small firearms manufacturing	-1.05%	-7.56%
Small arms ammunition manufacturing	-2.52%	-0.63%
Total	-1.60%	-0.95%

Source: Deloitte analysis based on data from Bureau of Labor Statistics, US Office of Personnel Management, US Census Bureau

Figure 17. US aerospace and defense sector's operating profit per employee



Source: Deloitte analysis of aerospace and defense company annual reports 2010–2015, 2016 quarterly reports, and Deloitte's Global aerospace and defense sector financial performance study, years 2011–2016



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