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Jobs Supported by Exports 2014: Product and Industry

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Jobs supported by exports were almost 11.6 million in 2014, of which 6.8 million were jobs supported by the export of goods and 4.8 million were jobs supported by the export of services. The impact of the export of goods and services on American jobs occurs throughout the supply chain. For example, the jobs of workers in the fabricated metal products industry are supported not only directly by the exports of fabricated metal, but also by the export of products such as machinery and electronic products that use fabricated metal products as inputs in their production processes. Similarly, the export of fabricated metal products not only directly supports the jobs of workers employed in the fabricated metal industry itself, but also indirectly supports the jobs of some workers in industries such as primary metals, wholesale trade and transportation that supply inputs to the production of fabricated metal products.

This report uses an input-output approach to evaluate the jobs supported by exports throughout the supply chain for the most recent year that industry data was available, 2014. First, we look at the jobs supported *within* an industry by exports that are produced in that industry or by the use of the output of that industry as an input into a product that is exported. Second, we look at the jobs supported by the export of a product across all industries that produce the export or that or supply inputs used in the production of the export.

In 2014, we find that as a group manufacturing industries have the highest share, 26 percent, of their employment supported by exports. We further find that although 59 percent of all export supported jobs are supported *by* the export of goods, 68 percent of all export-supported jobs are *within* service industries. Finally, we find that for every job within manufacturing supported by the export of manufactured products there is also a job supported in service industries by the export of those manufactured products.

Data and Methodology

This study uses input-output analysis to measure the relationship between exports and jobs in 2014. As noted in Rasmussen and Johnson (2015),¹ we now use input-output data from the Bureau of Economic Analysis (BEA) as opposed to input-output data from the Bureau of Labor Statistics (BLS) to estimate the number of jobs supported by exports. BEA's Annual Industry Accounts are updated more frequently than are the BLS input-output tables, which are

¹ Chris Rasmussen and Martin Johnson (2015), "Jobs Supported by Exports in 2014: An Update." U.S. Department of Commerce, International Trade Administration, Washington, DC.

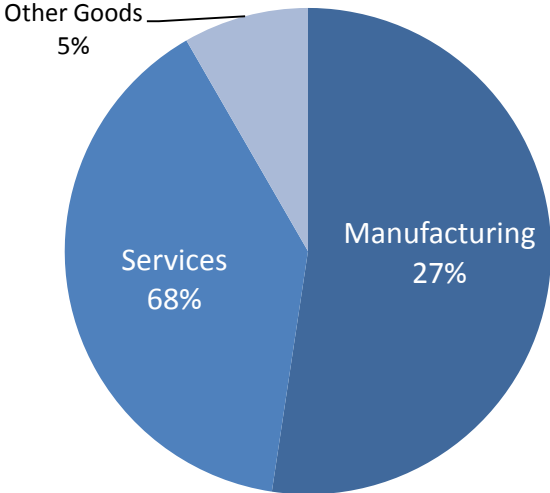
themselves derived from data originally produced by BEA. In particular, in this study we used 2014 data from BEA’s Annual Industry Accounts (the most recent data available) to produce a Domestic Total Requirements table for 2014. BEA data on Persons Engaged in Production by industry from the National Income and Product Accounts were used to produce a 2014 Employment Requirements Table. The export data used in this analysis were taken from BEA’s Annual Industry Accounts and BEA’s Tourism Satellite Accounts.

Industry Jobs Supported by Exports

In this section, we look at the jobs *within* a given industry that are supported by the export of all goods and services. That is, we look at both: 1) jobs within an industry that are supported by the export of the output of that industry; and 2) jobs within an industry that are supported indirectly by the export of all other goods and services that are produced using that industry’s output as an input into their production.

Just over two-thirds of jobs supported by exports were jobs located in service industries (Figure 1). Almost one-third were in goods industries – 27 percent in manufacturing and 5 percent in other goods (consisting of agriculture and related industries and mining.)

Figure1: Industry Location of Export Supported Jobs, 2014



Source: ITA calculations from BEA data.

However, since the majority of people in the U.S. are employed in service industries, the share of total employment *within* service industries that is supported by exports tends to be lower

for services industries as opposed to goods industries. Although over 7.8 million jobs within service industries are supported by exports, this figure represents about 8 percent of total employment in those industries. In contrast, the almost 3.2 million jobs in manufacturing industries that were supported by exports represent 26 percent of total manufacturing employment. Similarly, the nearly 0.5 million jobs supported by exports in agriculture and related industries represents 24 percent of employment, while 15 percent of employment in mining and related industries were export-supported jobs (Table 1).

Table 1: Industry Jobs Supported by Exports, 2014

Sector	Industry Jobs Supported	Share of Industry Employment
Agriculture, forestry, fishing, and hunting	466,315	24%
Mining	114,214	15%
Manufacturing	3,154,293	26%
Services	7,828,828	8%

Source: ITA calculations from BEA data.

At a more disaggregated industry level, the top five industries that have the *largest number* of jobs within the industry supported by exports are all service industries. The professional and business services industry has the greatest number of jobs supported by exports (2.3 million), followed by wholesale and retail trade (1.7 million), accommodation and food services (970 thousand), and transportation and warehousing (845 thousand) (Table 2). See Table A-1 for a complete list of industries.

Table 2: Industries with the Largest Number of Export Supported Jobs, 2014

Industry	Industry Jobs Supported	Share of Industry Employment
Professional and business services	2,297,445	12%
Wholesale and retail trade	1,728,124	8%
Accommodation and food services	970,302	9%
Transportation and warehousing	845,163	19%
Finance and insurance	670,372	11%

Source: ITA calculations from BEA data.

In contrast, the five industries which have the *highest share* of employment within the industry supported by exports are all manufacturing industries. Aerospace and other transportation equipment had the largest share of employment supported by exports (44 percent), followed by computer and electronics (41 percent), primary metals (37 percent), Chemicals (34 percent) and Electrical equipment, appliances, and components (33 percent) (Table 3).

Table 3: Industries with the Largest Share of their Employment Supported by Exports, 2014

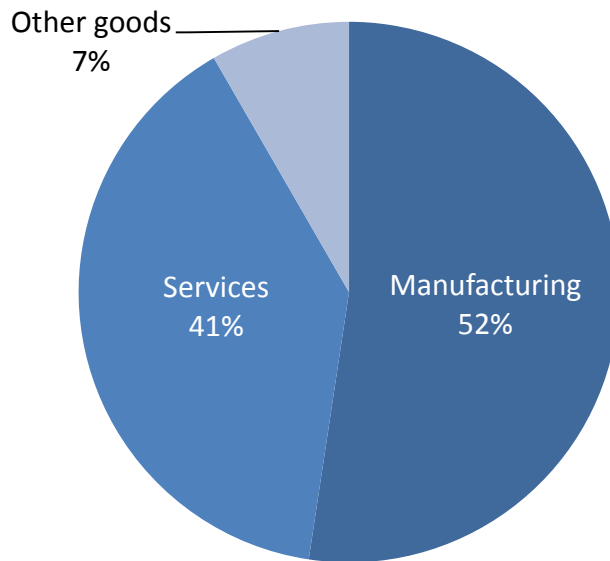
Industry	Industry Jobs Supported	Share of Industry Employment
Aerospace and other transportation equipment	298,967	44%
Computer and electronics	425,465	41%
Primary metals	144,536	37%
Chemicals	271,149	34%
Electrical equipment, appliances, and components	125,394	33%

Source: ITA calculations from BEA data.

Jobs Supported by Product Exports

In this section we examine the number of jobs supported by the export of a product both within the industry that produced the exported product and in those industries that supplied inputs to the exporting industry. Goods exports accounted for 70 percent of total U.S. export value in 2014. As a result, it is not surprising that the export of goods supported the majority, 59 percent, of jobs supported by exports while the export of services account for the remaining 41 percent. Jobs supported by the export of manufactured products account for the largest share of exported supported jobs at 52 percent, while the export of other goods supported 7 percent of the total (Figure 2).

Figure 2: Jobs Supported by Product Exports, 2014



Source: ITA calculations from BEA data.

Jobs Supported by Exports of Goods

Exports of goods supported a total of 6.8 million jobs in 2014. More than 88 percent of the jobs supported by goods exports were supported by the export of manufactured products, which supported 6.0 million jobs in 2014. Among the exports of manufactured products, exports of machinery products supported the greatest number of jobs, followed by chemical products, aerospace and other transportation equipment, motor vehicles and parts, and computer and electronic products. Combined, exports of these five products supported 3.5 million jobs and accounted for 58 percent of the 6.0 million jobs supported by the export of manufactured products (Table 4).

Table 4: Top 5 Jobs Supporting Goods Exports, 2014

Exported Product	Total Jobs Supported	Direct Jobs Supported	Indirect Jobs Supported
Machinery products	864,678	303,898	560,780
Chemical products	738,029	200,529	537,500
Aerospace and other transportation equipment	661,242	277,119	348,123
Motor vehicles, bodies and trailers, and parts	636,610	181,993	454,617
Computer and electronic products	623,133	338,933	284,002

Source: ITA calculations from BEA data

Table 4 breaks down the total jobs supported by the top five manufactured products into direct jobs supported (jobs in the industry producing the final exported product) and indirectly supported jobs (jobs supported in all other industries). For example, machinery exports supported 303,898 jobs directly in the machinery industry itself and 560,780 jobs indirectly in service producing industries, other manufacturing industries and other goods producing industries. This observation holds more generally, if we look at manufactured exports outside the Top 5, computer and electronic products is the only manufactured product whose export supports more jobs directly than indirectly (Appendix Table A-2).

How the employment impact of an export is spread across the supply chain differs depending on whether the exported product is a good or a service. In general, services constitute higher shares of total intermediate input use in goods industries than goods contribute to total intermediate input use by service industries. The location of the 6.8 million jobs supported by the export of goods was split almost evenly between goods producing industries and service producing industries: 53 percent were jobs in goods producing industries, while 47 percent were jobs in service industries. In contrast, 97 percent of the jobs supported by services exports were jobs in service industries. (Table 5)

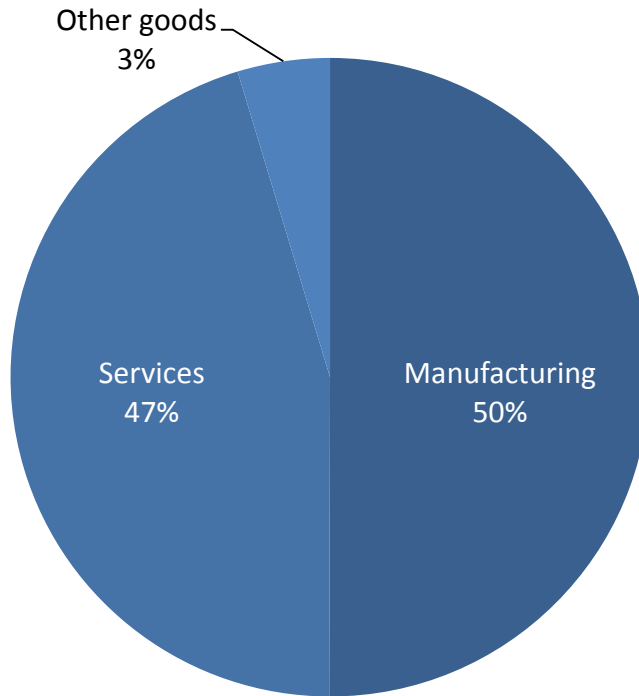
Table 5: Location of Jobs Supported by Product Exports, 2014

Exported Product	Jobs Supported by Product Exports	Jobs Supported in Goods Industries	Jobs Supported in Service Industries
Goods	6,783,899	3,584,702	3,199,197
Manufactured	6,025,651	3,197,291	2,828,361
Other	758,248	387,412	370,836
Services	4,779,751	150,120	4,629,631

Source: ITA calculations from BEA data. Entries may not sum to totals due to rounding.

For every job in the manufacturing sector supported by the export of manufactured products, there was nearly one job supported in the services sector. Of the 6.0 million jobs supported by the export of manufactured products, 3.2 million were jobs supported in the manufacturing sector itself while 2.8 million were jobs in the services sector. Three percent of the jobs supported by exports of manufactured products were located in other goods producing industries (Figure 3).

Figure 3: Location of Jobs Supported by the Export of Manufactured Products, 2014

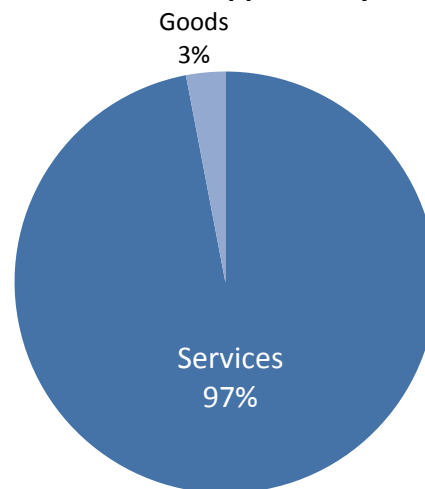


Source: ITA calculations from BEA data.

Jobs Supported by Exports of Services

The export of services supported 4.8 million jobs in 2014. In contrast to manufactured exports, almost all jobs supported by services exports (over 4.6 million) are jobs located in the service sector itself (Figure 4). As mentioned above, this is because services industries rely predominantly on labor rather than on goods as inputs into production.

Figure 4: Location of Jobs Supported by Services Exports



Source: ITA calculations from BEA data.

The five services exports that supported the most jobs were professional and business services; accommodation and food services; wholesale and retail trade; finance and insurance; and transportation and warehousing, totaling 3.7 million jobs. Combined, these five export categories accounted for 78 percent of all jobs supported by services exports (Table 6).

Table 6: Top 5 Jobs Supporting Services Exports, 2014

Exported Product	Total Jobs Supported	Direct Jobs Supported	Indirect Jobs Supported
Professional and business services	1,038,211	799,121	239,090
Accommodation and food services	933,721	754,123	179,598
Wholesale and retail trade	671,067	574,725	96,342
Finance and insurance	619,625	412,917	206,708
Transportation and warehousing	467,258	306,671	160,578

Source: ITA calculations from BEA data.

In contrast to manufactured exports, none of the five service exports listed in Table 6 support more jobs indirectly than are supported directly. Among all service exports, only exports of real estate and lessors of intangible assets supported a greater number of jobs indirectly than directly (Appendix Table A-2).

Appendix Tables

Table A-1: Industry Jobs Supported by Exports, 2014

Industry	Total Industry Jobs Supported	Share of Industry Employment
Agriculture, forestry, fishing, and hunting	466,315	24%
Mining	114,214	15%
Utilities	33,842	6%
Construction	95,328	1%
Wood	60,309	16%
Nonmetallic minerals	71,352	18%
Primary metals	144,536	37%
Fabricated metals	393,859	27%
Machinery	364,677	33%
Computer and electronics	425,465	41%
Electrical equipment, appliances, and components	125,394	33%
Motor vehicles, bodies and trailers, and parts	200,128	23%
Aerospace and other transportation equipment	298,967	44%
Furniture and related	35,321	9%
Miscellaneous manufacturing	140,556	23%
Food, beverage and tobacco	195,871	12%
Textile mills and textile product mills	61,173	25%
Apparel, leather and related	19,337	11%
Paper	93,142	26%
Printing and related	61,874	13%
Petroleum and coal	24,711	23%
Chemicals	271,149	34%
Plastics and rubber	166,472	25%
Wholesale and retail trade	1,728,124	8%
Transportation and warehousing	845,163	19%
Information	327,194	12%
Finance and insurance	670,372	11%
Real estate	114,004	6%
Rental and Leasing of intangible property	125,698	24%
Professional and business services	2,297,445	12%
Education, health care and social assistance	47,952	1%
Arts, entertainment, recreation	201,545	9%
Accommodation and food services	970,302	9%
Other services, except government	195,862	3%
Government	175,996	1%
Total	11,563,650	-

Source: ITA calculations from BEA data.

Table A-2: Jobs Supported by Product Exports, 2014

Exported Product	Total Jobs Supported	Direct Jobs Supported	Indirect Jobs Supported
Agriculture, forestry, fishing, and hunting	523,867	258,670	265,197
Mining	138,800	45,352	93,448
Utilities	7,185	1,969	5,215
Construction	1,003	696	307
Wood products	61,525	27,623	33,902
Nonmetallic mineral products	80,412	34,539	45,873
Primary metals	199,287	55,347	143,940
Fabricated Metal products	312,431	151,420	161,011
Machinery products	864,678	303,898	560,780
Computer and electronic products	623,133	338,933	284,200
Electrical equipment, appliances, and components	240,762	92,810	147,952
Motor vehicles, bodies and trailers, and parts	636,610	181,993	454,617
Aerospace and other transportation equipment	661,242	277,119	384,123
Furniture and related products	46,100	22,620	23,480
Miscellaneous manufacturing products	307,968	118,242	189,726
Food and beverage and tobacco products	502,867	147,255	355,612
Textile mills and textile product mills	89,646	38,053	51,593
Apparel, leather and allied products	59,250	17,657	41,593
Paper products	144,838	50,709	94,129
Printing and related support activities	22,294	13,158	9,136
Petroleum and coal products	254,664	16,009	238,655
Chemical products	738,029	200,529	537,501
Plastics and rubber products	179,916	73,195	106,722
Wholesale and retail trade	671,067	574,725	96,341
Transportation and warehousing	467,258	306,671	160,587
Information	413,718	211,952	201,767
Finance and insurance	619,625	412,917	206,708
Real estate	20,725	6,390	14,335
Rental and leasing and lessors of intangible assets	299,977	80,850	219,127
Professional and business services	1,038,211	799,121	239,090
Educational and health care	60,621	39,399	21,222
Arts, entertainment, recreation	232,426	159,123	73,303
Accommodation and food services	933,721	754,123	179,598
Other services, except government	10,918	8,758	2,161
Government	3,294	2,251	1,043
Scrap, used and secondhand goods	95,581	-	95,581
Total	11,563,650	5,824,076	5,739,575

Source: ITA calculations from BEA data. Individual rows may not sum to total due to rounding.

Table A-3: Industry to NAICS Correspondence

Industry Name	Related 2007 NAICS Codes
Agriculture, forestry, fishing, and hunting	111, 112, 113, 114, 115
Mining	211, 212, 213
Utilities	221
Construction	23
Wood products	321
Nonmetallic mineral products	327
Primary metals	331
Fabricated metal products	332
Machinery	333
Computer and electronic products	334
Electrical equipment, appliances, and components	335
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363
Aerospace and other transportation equipment	3364, 3365, 3366, 3369
Furniture and related products	337
Miscellaneous manufacturing	339
Food, beverage and tobacco products	311, 312
Textile mills and textile product mills	313, 314
Apparel, leather and allied products	315, 316
Paper	322
Printing and related support activities	323
Petroleum and coal products	324
Chemical products	325
Plastics and rubber products	326
Wholesale and retail trade	42,441-448,451-454
Transportation and warehousing	481,482,483,484,485, 486, 487, 448 , 492, 493,
Information	511, 512, 513,515, 517, 518, 519
Finance and insurance	521, 522, 523, 534, 525
Real estate	531. 532, 533
Rental and leasing and lessors of intangible assets	
Professional and business services	541, 55, 561, 562
Education, health care and social assistance	611, 621, 622, 623, 624
Arts, entertainment, recreation	711, 712, 713
Accommodation and food services	721, 722
Other services, except government	811, 812, 813, 814
Government	n/a except for 491