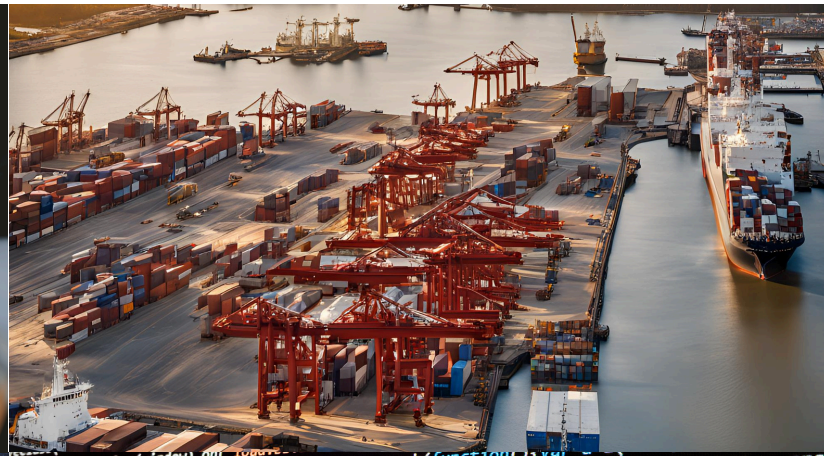


THE ECONOMIC IMPACT OF VIRGINIA EXPORTS

PREPARED FOR THE VIRGINIA CHAMBER OF COMMERCE AND THE VIRGINIA ECONOMIC DEVELOPMENT PARTNERSHIP



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Executive Summary

In this report, we provide an in-depth profile of Virginia's exports in 2022 and the economic contribution that those exports made to the state's economy.

The primary findings are:

1) National economies are increasingly intertwined through international trade, and international trade is an increasingly important part of every nation's economy:

- Since 2000, the volume of international trade has increased from \$6.4 trillion to \$23.7 trillion – an almost three-fold increase.

2) International trade is also an important and growing part of Virginia's economy:

- Between 2012 and 2022, the growth in Virginia's exports significantly outpaced the national average (55.0 percent in Virginia vs. 39.4 percent nationally).
- Between 2012 and 2022, the growth in Virginia's exports outpaced the state's overall growth in GDP (55.0 percent growth in exports vs. 48.4 percent growth in GDP), which means that exports not only expanded the state's economy, but they also caused it to grow at a faster rate than would otherwise have been the case.
- In 2022, Virginia ranked 14th among the states in total exports.
- The Virginia Economic Development Partnership's (VEDP's) nationally recognized International Trade Program has played a demonstrable role in achieving this success.

3) Virginia's exports are heavily weighted toward services, reflecting the state's high employment concentration in exportable services industries such as Professional and Business Services:

- In 2022, services comprised 64.1 percent (nearly two-thirds) of Virginia's total exports.
- Between 2012 and 2022, the growth in Virginia's services exports outpaced the state's goods exports (68.2 percent growth in services exports vs. 36.2 percent growth in goods exports) and outpaced national services export growth (68.2 percent in Virginia vs. 38.4 percent nationally).
- In 2022, Virginia ranked 2nd among the states in the proportion of its total exports comprised of services.

- Virginia's success in services exports is related to its high concentration of employment in exportable-services industries:
 - In 2022, Virginia ranked 4th among the states in the proportion of its total employment in exportable services industries.
 - In 2022, Professional and Business Services was Virginia's largest export sector at \$16.9 billion and accounted for 24.4 percent of the state's total exports.
 - Between 2012 and 2022, Virginia's Professional and Business Services sector experienced the largest dollar growth in exports at \$8.9 billion and the second-largest percentage growth at 111.7 percent.
- In 2022, services exports were the dominant export category in GO Virginia Region 7 (Northern Virginia) at \$28.9 billion, Region 4 (Greater Richmond Area) at \$5.3 billion, Region 5 (Hampton Roads) at \$5.2 billion, Region 6 (Fredericksburg, Middle Peninsula, and Northern Neck) at \$1.2 billion, and Region 9 (Greater Charlottesville area) at \$1.2 billion.
- In 2022, out of Virginia's top-ten export markets, services were the largest export category with: Ireland (\$6.1 billion), Switzerland (\$5.2 billion), The Netherlands (\$2.9 billion), The United Kingdom (\$3.3 billion), Germany (\$2.2 billion), Mexico (\$1.5 billion), and Japan (\$1.8 billion).

4) Goods exports remain a significant part of Virginia's economy and make a particularly important contribution to many regions of the state:

- In 2022, goods exports were the dominant export category in GO Virginia Region 1 (Southwest Virginia) at \$7.9 billion, Region 2 (Greater Roanoke and Lynchburg area) at \$3.9 billion, Region 8 (Shenandoah Valley) at \$1.5 billion, and Region 3 (Southern Virginia) at \$1.2 billion.
- Between 2012 and 2022, Virginia's Mining, Quarrying, and Oil and Gas Exploration sector experienced the second-largest dollar growth in exports at \$5.5 billion and the largest percentage growth at 1,423.9 percent.
- Manufacturing, in particular, has a high employment and labor-income multiplier, which means that this industry generates a significant economic ripple effect by supporting additional employment and labor income for suppliers located within the state or region.
- In 2022, out of Virginia's top-ten export markets, goods were the largest export category with: Canada (\$3.5 billion), China (\$2.8 billion), and India (\$2.3 billion).

5) Exports had a substantial impact on Virginia's economy. In 2022:

- Exports accounted for 10.5 percent of Virginia's total GDP.
- Virginia's \$69.3 billion in total exports is estimated to have supported a total of approximately:
 - 316,039 jobs (or one out of every ten private sector jobs in the state).
 - \$29.4 billion in wages and benefits.
 - \$87.7 billion in economic output.
 - \$3.4 billion in tax revenue (consisting of \$2.0 billion in state tax revenue and \$1.4 billion in local tax revenue).
- At a sector level:
 - Professional, Scientific, and Technical Services had the largest total statewide employment impact of any major industry export sector at 116,766 jobs, followed by Manufacturing at 57,944 jobs, and Information at 29,391 jobs.
 - Professional, Scientific, and Technical Services had the largest total statewide labor-income impact of any major industry export sector at \$12.6 billion, followed by Manufacturing at \$4.7 billion, and Information at \$3.5 billion.
 - Professional, Scientific, and Technical Services had the largest total statewide output impact of any major industry export sector in 2022 at \$23.4 billion, followed by Manufacturing at \$22.0 billion, and Information at \$10.7 billion.
- At a regional level:
 - GO Virginia Region 7 (Northern Virginia) had the largest total employment impact of any region at 142,313 jobs, followed by Region 4 (Greater Richmond area) at 44,038 jobs, and Region 5 (Hampton Roads) at 36,194 jobs.
 - GO Virginia Region 7 (Northern Virginia) had the largest total labor-income impact of any region at \$17.3 billion, followed by Region 4 (Greater Richmond area) at \$3.7 billion, and Region 5 (Hampton Roads) at \$2.3 billion.
 - GO Virginia Region 7 (Northern Virginia) had the largest total output impact of any region in 2022 at \$40.4 billion, followed by Region 4 (Greater Richmond area) at \$12.4 billion, and Region 1 (Southwest Virginia) at \$9.8 billion.

In sum, exports make an important contribution to Virginia's economy, supporting more than a tenth of Virginia's GDP and one out of every ten private sector jobs in the state. Moreover, the state's export growth is outpacing the national average, particularly with respect to services exports. Virginia's dominance in services exports is largely attributable to its exceptionally large Professional and Business Services sector. However, goods exports remain a significant part of Virginia's economy and are a particularly important part of the economies of the Greater Roanoke and Lynchburg area, the Shenandoah Valley, Southern Virginia, and Southwest Virginia.

Introduction

In this report, we provide an in-depth profile of Virginia's exports in 2022 and the economic contribution that those exports made to the state's economy. This report was commissioned by the Virginia Chamber of Commerce and produced by Raymond A. Mason School of Business at The College of William and Mary in partnership with Mangum Economics.

Exports and the Global Economy

In this section, we briefly discuss how international trade is becoming an increasingly important part of the global economy, Virginia's participation in international trade and the impact it has on the state's economy, and the Virginia Economic Development Partnership's (VEDP's) role in assisting Virginia businesses to expand into international markets.

TRENDS IN INTERNATIONAL TRADE

According to the Observatory of Economic Complexity (OEC) website,¹ since 2000, international trade has increased from \$6.4 trillion to \$23.7 trillion – an almost three-fold increase. In 2022, the world's biggest exporters were China (\$3.7 trillion), the United States (\$2.0 trillion), Germany (\$1.6 trillion), Japan (\$728 billion), and South Korea (\$705 billion), while the world's biggest importers were the United States (\$3.1 trillion), China (\$2.2 trillion), Germany (\$1.5 trillion), Japan (\$819 billion), and France (\$799 billion).² In short, national economies are increasingly intertwined through international trade and international trade is an increasingly important part of every nation's economy.

International trade is also an important and growing part of Virginia's economy. As will be demonstrated in greater detail in the *Exports and Virginia's Economy* section of this report, the value of products produced in Virginia for export has grown substantially over the last decade and at a rate that far surpasses the national average. Between 2012 and 2022, Virginia exports grew by \$24.6 billion or 55.0 percent (unadjusted for inflation). Importantly, Virginia's 55.0 percent increase over the period was one and a half times greater than the 39.4 percent at which exports grew nationally. Moreover, Virginia's export growth outpaced the state's overall GDP growth over the period (55.0 percent vs. 48.4 percent), which means that exports not only expanded the state's economy, they also caused GDP to grow at a faster rate than would otherwise have been the case.

Not surprisingly, exports also have a big impact on Virginia's economy. In 2022, exports accounted for 10.5 percent of Virginia's total GDP.³ And as will be demonstrated in the *Economic and Fiscal Impact*

¹ The Observatory of Economic Complexity (OEC) is a commonly used online data visualization platform that collects and integrates national and sub-national data from over 20 major countries. OEC originated at MIT's Collective Learning Group, where it was the Master Thesis of Alex Simones (2012), directed by Professor Ceasar A. Hidalgo.

² Data Source: OEC.

³ Data Source: WISERTrade and IMPLAN.

section, exports also directly or indirectly supported approximately 316,039 jobs in Virginia in 2022 (or one out of every ten private sector jobs in the state), \$29.4 billion in wages and benefits, and \$87.7 billion in economic output.

From a practical perspective, however, navigating the complexity of international trade requires a level of knowledge and experience that exceeds the existing capacity of many businesses, and particularly that of small and medium-sized businesses. In Virginia, the task of assisting companies in over-coming those hurdles and expanding into international trade falls to the Virginia Economic Development Partnership (VEDP).

VEDP'S ROLE IN EXPANDING VIRGINIA'S ECONOMY THROUGH INTERNATIONAL TRADE

VEDP's International Trade program is nationally recognized. In 2024, VEDP once again received the U.S. Department of Commerce's E-Star Award, a recognition given to companies and organizations that make significant contributions to increasing U.S. export activity.

VEDP offers many programs to help Virginia businesses begin exporting or increase their exports:

- The **Global Defense Program** helps Virginia's defense companies diversify into new international markets with business strategy, export compliance, matchmaking, translation, and market research.
- **Trade Missions** organized by VEDP help Virginia companies travel internationally to meet face-to-face with prequalified potential customers.
- The **State Trade and Export Promotion (STEP) Grant** can grow the number of small businesses that export and increase the value of goods and services exported. The STEP program is funded through a cooperative agreement with the U.S. Small Business Administration.
- The year-long **Virginia Supply Chain Optimization Program** helps Virginia companies evaluate and strengthen supply chain processes for inputs and components for future exporting efforts.
- The **Virginia Global Business Internship Program** matches students enrolled in Virginia colleges and universities with Virginia companies seeking assistance in developing their international trade.
- **International Market Research**, provided by a global network of consultants in more than 120 foreign countries, assists Virginia companies with market intelligence that is specific to each company's product or service and to the foreign market that they are investigating. These free services also include compiling background information, identifying potential representatives, conducting due diligence, and arranging appointments with potential distributors and customers.
- **Virginia Leaders in Export Trade (VALET)** is a two-year international business accelerator program that provides businesses capital resources and professional services from private-sector partners. The VALET program has been shown to generate an average increase in international sales of 78% for participating companies.

Collectively, in fiscal year 2022, 377 Virginia companies enrolled in these programs. Their participation generated an estimated \$813 million in projected international sales, and those sales supported an estimated 7,319 jobs in Virginia.⁴

⁴ Data Source: Virginia Economic Development Partnership.

COMPANY INTERVIEWS

To better understand companies' perception of how VEDP's efforts to expand international trade affect them, we conducted 34 in-depth interviews with companies spanning all nine GO Virginia Regions.

Below are a sample of representative quotes obtained in those interviews:

- “One of our strengths was an ability to experiment, to test opportunities versus seeing only risks. VEDP was very helpful in this.”
- “We have great strength in upper management buy-in, recognition that foreign buyers are available, and willing to make the investment, (this) alongside the use of VEDP's connections through trade shows and trade missions was critical.”
- “VEDP has helped us find the relevant, successful contacts and distributors. Some countries and regions are difficult to crack on our own. We lacked in-country distributors, which is a better model. Our distributors and partners were weak, so we got (their) help to trade up.”
- “We strongly agree that VEDP's partnership is critical to finding (international) partners, contacting foreign officials, visiting countries, and changing attitudes through training. This created a high ability to establish relationships through a great deal of trust. We would have had limited growth outside the US without VEDP.”
- “Once we had an understanding of how to accomplish international research, there was a great deal of sites that offer opportunities (e.g., NATO, UN, EU call for proposals). Also, ongoing relationships with U.S. Department of Commerce, U.S. embassies abroad, and VEDP support are essential. We have a grant from the Regional Export Program. We participated in a trade mission. And, we have conversations with a VEDP consultant. We now better understand the opportunities in other regions of the world through things like Virginia Chamber of Commerce forums, other opportunities to learn, and learning through a partnership with VEDP. It has been valuable.”
- “Ever-changing tax codes, regulations, laws, exporting rules, fees, tariffs, inflation – all are costs. ‘Dumpster fires’, economic uncertainty, labor disputes, theft of IP, and political unpredictability are additional risks that discourage us from exporting. Work permits and business licenses are time-consuming and expensive. Export controls, especially for advanced technologies, is our biggest hurdle. VEDP helped us manage these fears, create a plan, and move forward with solid partners.”

As these quotes demonstrate, interviewed companies typically saw VEDP as a significant resource and most explicitly stated that they would not have attempted to export without essential VEDP help. In particular, they cited VEDP's assistance in establishing direct, *in-country*, contact with customers, distributors, agents, and retailers as a key to their success and in overcoming concerns about the risks inherent to international trade.



Exports and Virginia's Economy

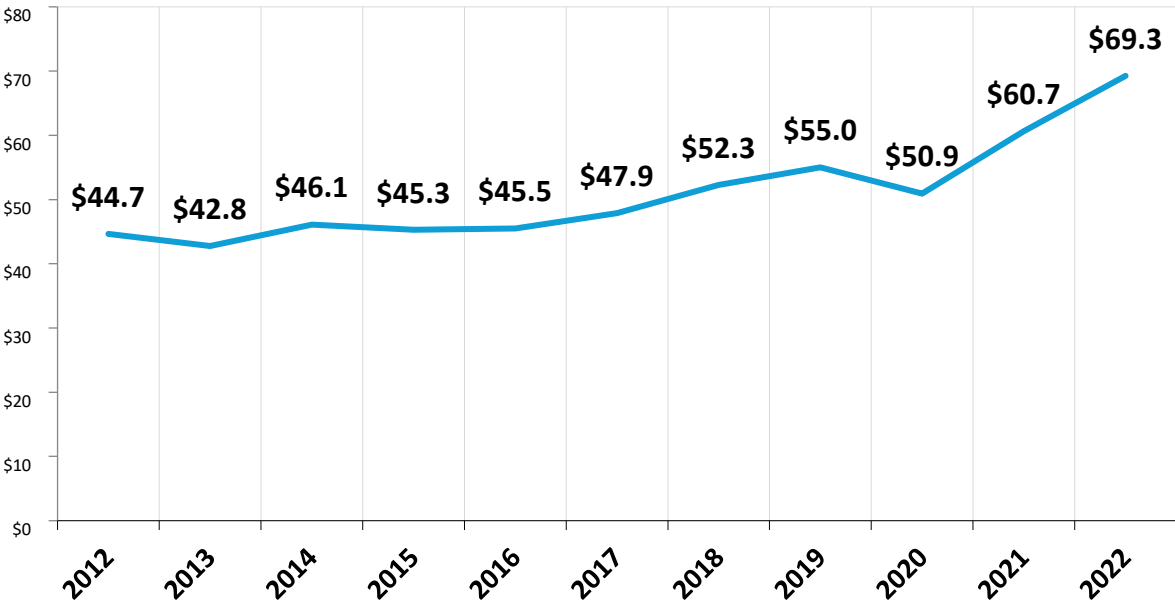
In this section of the report, we provide a profile of Virginia exports at the statewide and regional levels, show how Virginia ranks relative to other states, and identify key export markets.

STATEWIDE

Total Exports

Exports play an increasingly significant role in Virginia's economy. As shown in Figure 1, between 2012 and 2022, total Virginia exports grew from \$44.7 billion to \$69.3 billion, a 55.0 percent increase.

Figure 1: Virginia's Total Exports (in billions of current dollars) – 2012 to 2022⁵



⁵ Data Source: WISERTrade.

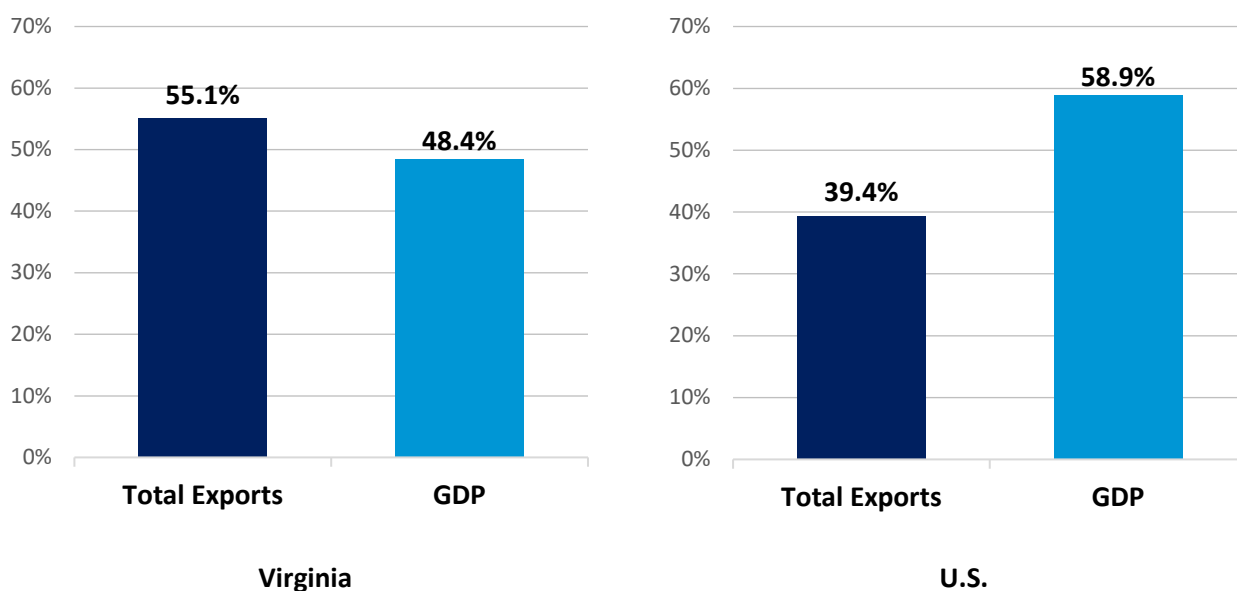


To put this figure in context, Figure 2 benchmarks Virginia’s growth in total exports over the period against the state’s growth in GDP⁶ and provides a similar comparison for the U.S. as a whole.

The data in Figure 2 reveal three important characteristics of Virginia’s export market between 2012 and 2022:

- Growth in Virginia exports outpaced the state’s overall growth in GDP (55.0 percent growth in exports vs. 48.4 percent growth in GDP).
- Growth in Virginia’s exports significantly outpaced the national average (55.0 percent in Virginia vs. 39.4 percent nationally).
- Without Virginia’s above-average growth in exports (55.0 percent in Virginia vs. 39.4 percent nationally), its below-average growth in GDP (48.4 percent in Virginia vs. 58.9 percent nationally) would have been even lower.

Figure 2: Change in Total Exports and GDP between 2012 and 2022⁷



⁶ GDP or Gross Domestic Product is the total value of goods and services produced within a geography (e.g., state or the U.S.).

⁷ Data Source: WISERTrade and IMPLAN.



Exports by Industry Sector

Goods and Services

Although the traditional way to think of exports is in terms of physical goods that are shipped overseas – such as agricultural products, chemicals, and machinery – it is important to realize that services can also be exported. As we will discuss in greater detail later in this section, in Virginia the industry with the largest amount of service exports provides scientific and technical consulting services to overseas customers.

Figure 3 depicts Virginia’s exports of goods and services between 2012 and 2022. As these data show, Virginia’s exports over this period were heavily weighted towards services and the gap between goods exports and services exports grew substantially over the period. In 2022, service exports accounted for 64.1 percent, or almost two-thirds, of all Virginia exports.

The data in Figure 3 also show that services exports grew faster than goods exports between 2012 and 2022 (*i.e.*, services exports increased by \$18.0 billion or 68.2 percent over the period, whereas goods exports increased by \$6.6 billion or 36.1 percent).

Figure 3: Virginia’s Exports of Goods and Services (in billions of current dollars) – 2012 to 2022⁸

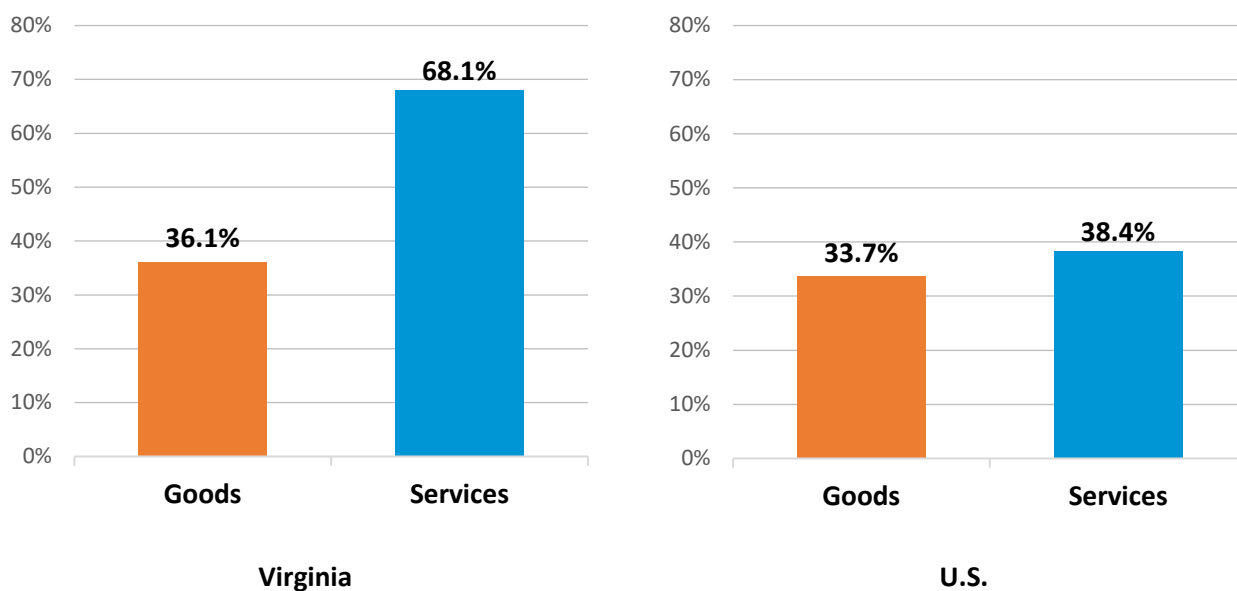


⁸ Data Source: WISERTrade.



As with Figure 2, Figure 4 benchmarks these growth rates against the U.S. as a whole. As the data in Figure 4 illustrate, between 2012 and 2022, Virginia outperformed the national average in the growth of goods and services exports, but especially in services exports. Virginia experienced a 36.1 percent growth in goods exports over the period as compared to 33.7 percent nationally and a 68.2 percent increase in services exports as compared to 38.4 percent nationally.

Figure 4: Change in Goods and Services Exports between 2012 and 2022⁹



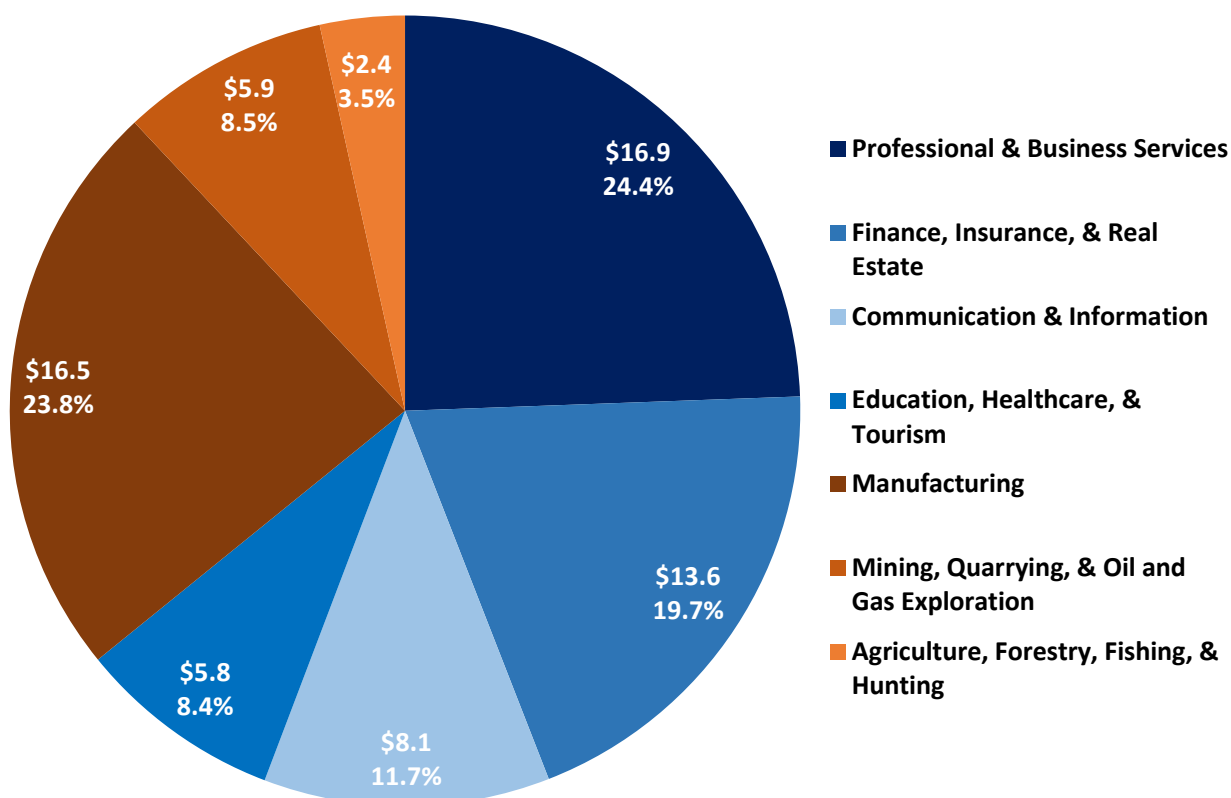
⁹ Data Source: WISERTrade and IMPLAN



Industry Sectors

In this portion of the section, we drill down into the top-line numbers to provide detailed insights on exports by industry supersector.¹⁰ Figure 5 depicts the distribution of Virginia’s exports across major industry sectors in 2022.

Figure 5: Virginia’s 2022 Exports by Major Industry Sector (in billions of 2022 dollars)¹¹



As these data show:

- 1) Goods sectors were responsible for 35.9 percent of Virginia’s exports in 2022:
 - Manufacturing was the largest goods export sector at \$16.5 billion and accounted for 23.8 percent of total exports.
 - Mining, Quarrying, and Oil and Gas Extraction was the second-largest goods export sector at \$5.9 billion and accounted for 8.5 percent of total exports.

¹⁰ A “supersector” is the highest level of aggregation in the coding system that the U.S. Bureau of Labor Statistics uses to classify industries. The categories shown in Figure 5 are derived from that taxonomy.

¹¹ Data Source: WISERTrade. Numbers in the chart may not sum to the total due to rounding.



- Agriculture, Forestry, Fishing, & Hunting was the third-largest goods export sector at \$2.4 billion and accounted for 3.5 percent of total exports.

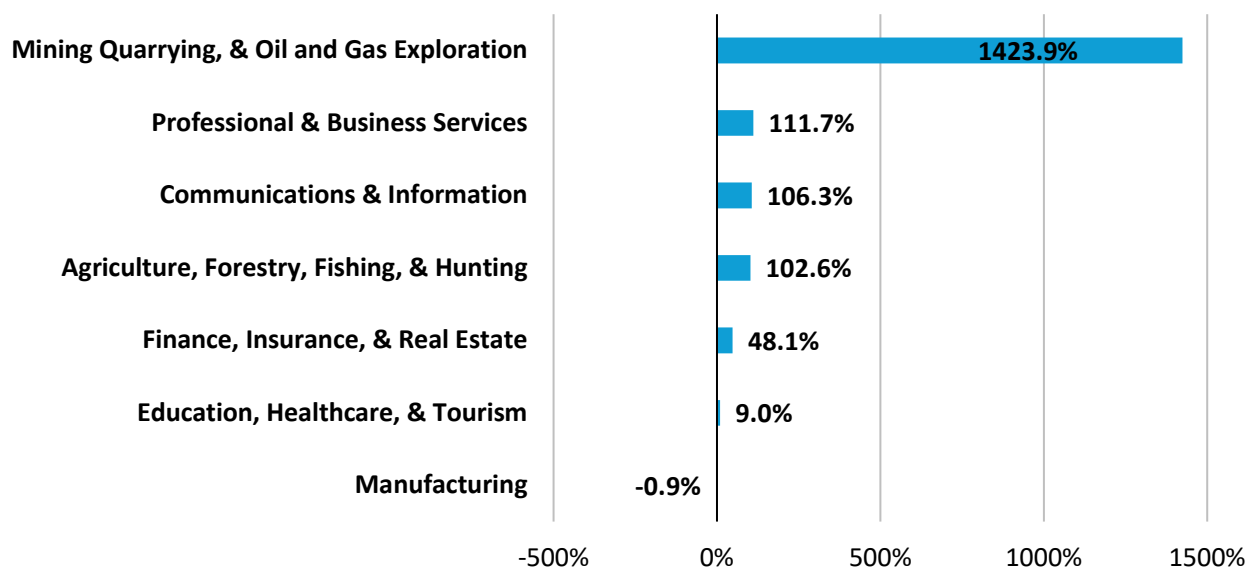
2) Services sectors were responsible for 64.1 percent of Virginia's exports in 2022:

- Professional and Business Services was the largest services export sector at \$16.9 billion and accounted for 24.4 percent of total exports.
- Finance, Insurance, and Real Estate was the second-largest services export sector at \$13.6 billion and accounted for 19.7 percent of total exports.
- Communication and Information was the third-largest services export sector at \$8.1 billion and accounted for 11.7 percent of total exports.
- Education, Healthcare, and Tourism was the fourth-largest services export sector at \$5.8 billion and accounted for 8.4 percent of total exports.



Where Figure 5 focused on the size of Virginia’s major industry export sectors in 2022, Figures 6 and 7 provide insight into the growth of those sectors between 2012 and 2022. As shown in Figure 6, at 1,423.9 percent, Mining, Quarrying, and Oil and Gas Exploration experienced the largest percentage growth between 2012 and 2022, followed by Professional and Business Services at 111.7 percent, and Communication and Information at 106.3 percent.

Figure 6: Percentage Growth in Virginia’s Exports by Major Industry Sector between 2012 and 2022¹²

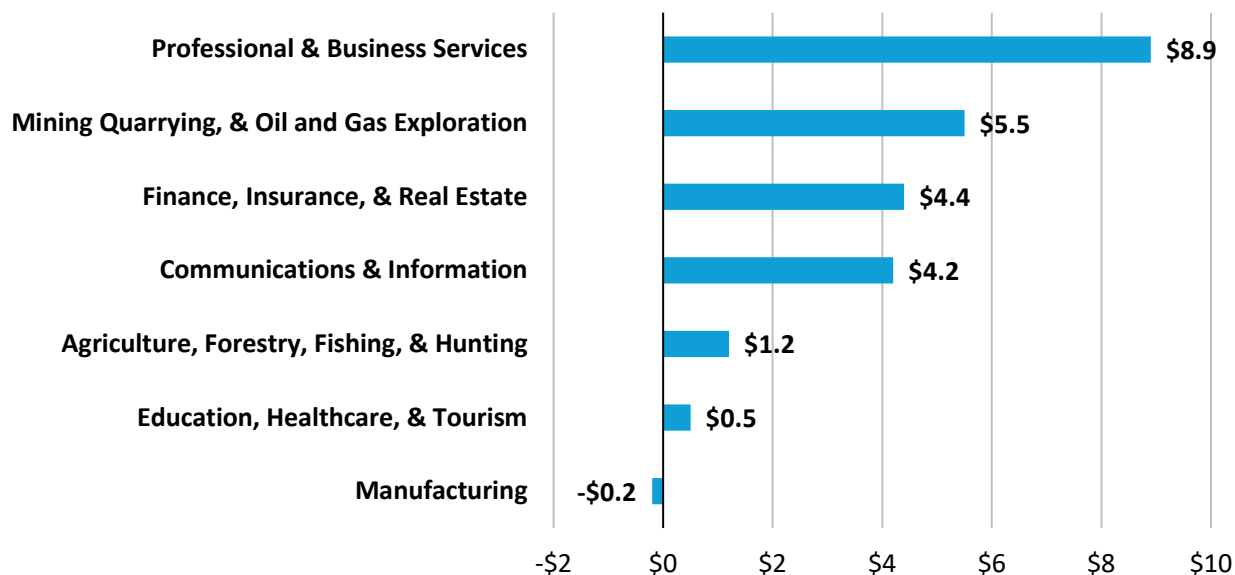


¹² Data Source: WISERTrade



As shown in Figure 7, at \$8.9 billion, Professional and Business Services experienced the largest dollar growth between 2012 and 2022, followed by Mining, Quarrying, and Oil and Gas Exploration at \$5.5 billion, and Finance, Insurance, and Real Estate at \$4.4 billion.

Figure 7: Dollar Growth in Virginia's Exports by Major Industry Sector between 2012 and 2022 (in billions of current dollars)¹³



¹³ Data Source: WISERTrade

Top Export Industries

In this portion of the section, we drill down still further to identify Virginia’s top exporting industries in 2022. Table 1 ordinally ranks Virginia’s top-ten exporting industries by their total exports in 2022. Overall, these top-ten industries accounted for \$45.1 billion, or 65.1 percent, of Virginia’s total exports in 2022. Management, Scientific, and Technical Consulting Services leads the list with \$13.9 billion in exports, followed by Lessors of Nonfinancial Intangible Assets¹⁴(Licensing of Intellectual Property) at \$9.4 billion, and Coal Mining at \$6.5 billion. Goods exports are in orange and services exports are in blue.

Table 1: Top-Ten Virginia Exporting Industries in 2022 by NAICS Code (in billions of 2022 dollars)¹⁵

NAICS 4	Description	Exports	% of Total
5416	Management, Scientific, and Technical Consulting Services	\$13.9	20.1%
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$9.4	13.6%
2121	Coal Mining	\$6.5	9.4%
5132	Software Publishers	\$5.1	7.4%
5222	Non-depository Credit Intermediation	\$3.2	4.6%
5182	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	\$2.6	3.8%
3252	Resin, Synthetic Rubber, and Artificial and Synthetic Fibers Manufacturing	\$1.2	1.7%
3221	Pulp, Paper, and Paperboard Mills	\$1.1	1.6%
5413	Architectural, Engineering, and Related Services	\$1.1	1.6%
3344	Semiconductor and Other Electronic Component Manufacturing	\$1.0	1.4%
Top-Ten Exports		\$45.1	65.1%
Total Exports		\$69.3	

¹⁴ The Virginia export services counted under this NAICS are primarily businesses licensing patented technologies and other intellectual property.

¹⁵ Data Source: WISERTrade. Columns may not sum due to rounding.

Virginia's Ranking Relative to Other States

VEDP's International Trade Division has identified eight states (Delaware, Georgia, Kentucky, Maryland, New Jersey, North Carolina, South Carolina, and Tennessee) as Virginia's key competitors with respect to exports. Table 3 ranks Virginia against these competitor states (highlighted in grey) along with all other states for total exports, goods exports, and services exports in 2022.

The most salient observations from Table 2 are that in 2022:

- Virginia ranked 14th among the states in total exports, and among VEDP's eight identified competitor states, only Georgia (7th) and New Jersey (10th) ranked above Virginia.
- Virginia ranked 24th among the states in goods exports, and six of VEDP's eight identified competitor states (*i.e.*, Georgia at 11th, Kentucky at 16th, New Jersey at 12th, North Carolina at 14th, South Carolina at 19th, and Tennessee at 15th) ranked above Virginia.
- Virginia ranked 5th among the states in services exports, and none of VEDP's eight identified competitor states ranked above Virginia.

Table 2: National Ranking: Total Exports, Goods Exports, and Services Exports (in billions of 2022 dollars)¹⁶

State	2022 Total Exports	2022 State Rank	2022 Goods Exports	2022 State Rank	2022 Services Exports	2022 State Rank
U.S.	\$3,014.6		\$2,066.5		\$948.1	
Alabama	\$30.8	26	\$25.7	23	\$5.0	33
Alaska	\$7.9	41	\$5.6	39	\$2.3	41
Arizona	\$50.0	17	\$27.2	21	\$22.8	13
Arkansas	\$8.8	40	\$5.9	38	\$2.9	38
California	\$331.9	2	\$186.2	2	\$145.7	1
Colorado	\$27.9	29	\$10.3	32	\$17.6	14
Connecticut	\$28.3	28	\$15.4	30	\$12.9	20
Delaware	\$9.2	39	\$5.2	41	\$4.0	36
Florida	\$132.0	5	\$67.7	6	\$64.2	4
Georgia	\$85.1	7	\$47.4	11	\$37.8	8
Hawaii	\$5.6	44	\$0.4	50	\$5.2	32
Idaho	\$6.6	42	\$4.1	43	\$2.5	40
Illinois	\$117.9	6	\$79.0	5	\$39.0	7
Indiana	\$53.1	16	\$45.5	13	\$7.6	26
Iowa	\$21.4	30	\$18.1	25	\$3.4	37
Kansas	\$18.4	33	\$14.0	31	\$4.4	35
Kentucky	\$45.0	20	\$34.9	16	\$10.1	24

¹⁶ Data Source: WISERTrade.



State	2022 Total Exports	2022 State Rank	2022 Goods Exports	2022 State Rank	2022 Services Exports	2022 State Rank
Louisiana	\$134.9	4	\$122.0	3	\$12.9	21
Maine	\$5.4	45	\$3.5	44	\$1.9	43
Maryland	\$47.3	19	\$17.8	26	\$29.5	10
Massachusetts	\$71.7	13	\$32.7	18	\$39.0	6
Michigan	\$79.3	9	\$62.8	7	\$16.6	15
Minnesota	\$42.1	21	\$27.1	22	\$14.9	19
Mississippi	\$18.5	32	\$15.9	29	\$2.6	39
Missouri	\$32.6	25	\$16.7	27	\$15.9	18
Montana	\$3.6	48	\$2.0	48	\$1.6	45
Nebraska	\$15.2	34	\$8.9	34	\$6.3	29
Nevada	\$20.1	31	\$10.1	33	\$10.0	25
New Hampshire	\$9.6	37	\$7.3	36	\$2.3	42
New Jersey	\$76.7	10	\$46.2	12	\$30.4	9
New Mexico	\$10.6	36	\$4.8	42	\$5.8	31
New York	\$229.6	3	\$109.2	4	\$120.3	2
North Carolina	\$56.7	15	\$40.2	14	\$16.5	16
North Dakota	\$6.4	43	\$5.2	40	\$1.2	49
Ohio	\$73.0	12	\$56.9	9	\$16.1	17
Oklahoma	\$11.5	35	\$6.8	37	\$4.7	34
Oregon	\$41.0	22	\$34.4	17	\$6.6	28
Pennsylvania	\$75.2	11	\$49.9	10	\$25.3	11
Rhode Island	\$4.5	46	\$2.9	45	\$1.6	46
South Carolina	\$39.0	23	\$31.5	19	\$7.5	27
South Dakota	\$3.6	47	\$2.4	47	\$1.3	48
Tennessee	\$49.4	18	\$38.3	15	\$11.1	23
Texas	\$555.4	1	\$486.0	1	\$69.4	3
Utah	\$28.6	27	\$16.6	28	\$12.0	22
Vermont	\$3.3	50	\$2.5	46	\$0.8	50
Virginia	\$69.3	14	\$24.9	24	\$44.4	5
Washington	\$84.5	8	\$61.2	8	\$23.3	12
West Virginia	\$9.3	38	\$7.8	35	\$1.5	47
Wisconsin	\$33.5	24	\$27.4	20	\$6.1	30
Wyoming	\$3.5	49	\$1.9	49	\$1.6	44

Tables 3 and 4 provide some additional insight into Virginia’s rankings for goods and services exports presented in Table 2.

Table 3 ranks the proportion of each state’s total exports comprised of goods along with the proportion of its total employment comprised of goods exporting industries. The two metrics are highly correlated – the larger the proportion of a state’s total employment that is in exporting industries, the larger the proportion of a state’s total exports that is in goods exports. Virginia’s rankings are consistent with this pattern. Where Virginia ranks 49th among the states in goods exports as a proportion of total exports, it also ranks 43rd among the states in goods export industry employment as a proportion of total employment.

Table 3: National Ranking: Goods Exports Percentage and Goods Exports Employment Percentage¹⁷

State	2022 Goods Exports as a Percentage of Total	2022 State Rank	2022 Goods Employment as a Percentage of Total	2022 State Rank
U.S.	68.5%		17.3%	
Alabama	83.7%	8	23.5%	5
Alaska	70.4%	21	16.8%	33
Arizona	54.4%	38	15.6%	39
Arkansas	67.2%	22	22.3%	8
California	56.1%	35	17.4%	30
Colorado	36.9%	48	15.8%	38
Connecticut	54.3%	39	15.6%	40
Delaware	57.0%	34	13.0%	46
Florida	51.3%	41	13.0%	47
Georgia	55.6%	36	16.1%	36
Hawaii	7.7%	50	11.0%	49
Idaho	61.6%	29	23.3%	6
Illinois	67.0%	23	16.0%	37
Indiana	85.6%	4	26.3%	1
Iowa	84.2%	5	25.2%	3
Kansas	76.1%	17	22.0%	10
Kentucky	77.6%	14	21.5%	15
Louisiana	90.5%	1	19.2%	23
Maine	64.3%	28	18.1%	28
Maryland	37.7%	47	13.0%	45
Massachusetts	45.6%	45	13.3%	44
Michigan	79.1%	12	22.0%	9

¹⁷ Data Source: WISERTrade and U.S. Bureau of Labor Statistics.



State	2022 Goods Exports as a Percentage of Total	2022 State Rank	2022 Goods Employment as a Percentage of Total	2022 State Rank
Minnesota	64.5%	27	19.5%	20
Mississippi	86.2%	3	22.7%	7
Missouri	51.2%	42	18.1%	27
Montana	55.1%	37	17.2%	32
Nebraska	58.6%	32	21.5%	13
Nevada	50.4%	43	14.5%	42
New Hampshire	76.2%	16	17.4%	29
New Jersey	60.3%	30	11.8%	48
New Mexico	45.4%	46	16.7%	35
New York	47.6%	44	10.6%	50
North Carolina	70.9%	20	18.6%	25
North Dakota	81.7%	10	21.7%	11
Ohio	78.0%	13	20.1%	18
Oklahoma	59.0%	31	19.4%	22
Oregon	83.9%	7	21.6%	12
Pennsylvania	66.3%	24	16.7%	34
Rhode Island	64.6%	26	14.8%	41
South Carolina	80.8%	11	20.8%	17
South Dakota	64.7%	25	21.5%	14
Tennessee	77.6%	15	19.1%	24
Texas	87.5%	2	17.3%	31
Utah	58.0%	33	21.2%	16
Vermont	75.8%	18	19.5%	21
Virginia	35.9%	49	14.4%	43
Washington	72.4%	19	19.7%	19
West Virginia	84.0%	6	18.2%	26
Wisconsin	81.9%	9	25.5%	2
Wyoming	53.6%	40	24.2%	4

Table 4 ranks the proportion of each state’s total exports comprised of services along with the proportion of its total employment comprised of services-exporting industries. Here again, the two metrics are highly correlated and where Virginia ranks 2nd among the states in services exports as a proportion of total exports, it also ranks 4th among the states in services export industry employment as a proportion of total employment.

Table 4: National Ranking: Services-exports Percentage and Services-exports Employment Percentage¹⁸

State	2022 Services Exports as a Percentage of Total	2022 State Rank	2022 Exportable-Services Employment as a Percentage of Total	2022 State Rank
U.S.	31.5%		27.1%	
Alabama	16.3%	43	25.1%	28
Alaska	29.6%	30	24.0%	40
Arizona	45.6%	13	27.8%	15
Arkansas	32.8%	29	21.4%	50
California	43.9%	16	27.2%	18
Colorado	63.1%	3	33.2%	2
Connecticut	45.7%	12	25.5%	25
Delaware	43.0%	17	32.0%	5
Florida	48.7%	10	31.3%	6
Georgia	44.4%	15	26.1%	23
Hawaii	92.3%	1	32.8%	3
Idaho	38.4%	22	25.1%	29
Illinois	33.0%	28	26.9%	20
Indiana	14.4%	47	21.4%	49
Iowa	15.8%	46	23.2%	43
Kansas	23.9%	34	23.9%	41
Kentucky	22.4%	37	22.9%	45
Louisiana	9.5%	50	24.9%	30
Maine	35.7%	23	24.2%	37
Maryland	62.3%	4	30.2%	7
Massachusetts	54.4%	6	29.6%	8
Michigan	20.9%	39	24.8%	32
Minnesota	35.5%	24	24.1%	38
Mississippi	13.8%	48	23.2%	44
Missouri	48.8%	9	26.5%	22
Montana	44.9%	14	29.5%	9

¹⁸ Data Source: WISERTrade and U.S. Bureau of Labor Statistics.



State	2022 Services Exports as a Percentage of Total	2022 State Rank	2022 Exportable-Services Employment as a Percentage of Total	2022 State Rank
Nebraska	41.4%	19	24.9%	31
Nevada	49.6%	8	35.8%	1
New Hampshire	23.8%	35	25.7%	24
New Jersey	39.7%	21	26.8%	21
New Mexico	54.6%	5	29.2%	10
New York	52.4%	7	28.9%	11
North Carolina	29.1%	31	27.5%	17
North Dakota	18.3%	41	22.9%	47
Ohio	22.0%	38	24.1%	39
Oklahoma	41.0%	20	25.5%	26
Oregon	16.1%	44	23.3%	42
Pennsylvania	33.7%	27	24.2%	36
Rhode Island	35.4%	25	28.4%	14
South Carolina	19.2%	40	27.1%	19
South Dakota	35.3%	26	25.2%	27
Tennessee	22.4%	36	24.7%	34
Texas	12.5%	49	28.7%	12
Utah	42.0%	18	27.8%	16
Vermont	24.2%	33	24.8%	33
Virginia	64.1%	2	32.1%	4
Washington	27.6%	32	24.6%	35
West Virginia	16.0%	45	22.9%	46
Wisconsin	18.1%	42	21.7%	48
Wyoming	46.4%	11	28.6%	13

Finally, Table 5 provides information on Virginia’s place in the national ranking of the states for selected export performance measures. The first of these is *2022 Exports as a percentage of GDP*. This metric measures export intensity or the proportion of a state’s total economic output that went to exports in 2022. The second (*Exports % Growth 2012 to 2022*) and third (*Exports \$ Growth 2012 to 2022*) performance metrics measure the percentage growth and dollar growth of each state’s export market between 2012 and 2022.

The most salient observations from Table 5 are that:

- Virginia ranked 15th among the states in export-intensity and among VEDP’s eight identified competitor states only Georgia (12th), Kentucky (3rd), and South Carolina (6th) ranked above Virginia.
- Virginia ranked 10th among the states in percentage growth of total exports between 2012 and 2022 and among VEDP’s eight identified competitor states only Georgia (8th), Kentucky (9th), and Maryland (7th) ranked above Virginia.
- Virginia ranked 6th among the states in dollar growth of total exports between 2012 and 2022 and among VEDP’s eight identified competitor states only Georgia (5th) ranked above Virginia.

Table 5: National Ranking: Export Performance Metrics (currency figures in billions of 2022 dollars)¹⁹

State	2022 Exports as a Percentage of GDP	2022 State Rank	Exports % Growth 2012 to 2022	2022 State Rank	Exports \$ Growth 2012 to 2022	2022 State Rank
U.S.	11.7%		39.4%		\$851.4	
Alabama	10.3%	17	27.6%	23	\$6.6	24
Alaska	11.9%	8	23.8%	29	\$1.5	35
Arizona	10.4%	16	70.1%	6	\$20.6	8
Arkansas	5.2%	47	-9.4%	45	-\$0.9	43
California	9.1%	27	27.9%	22	\$72.3	2
Colorado	5.6%	45	23.2%	31	\$5.2	27
Connecticut	8.6%	33	16.5%	35	\$4.0	31
Delaware	10.2%	18	-6.6%	42	-\$0.7	42
Florida	9.2%	25	14.9%	39	\$17.1	11
Georgia	11.2%	12	62.8%	8	\$32.8	5
Hawaii	5.5%	46	-61.5%	50	-\$8.9	50
Idaho	5.9%	44	-12.7%	47	-\$1.0	45
Illinois	11.5%	10	25.1%	25	\$23.7	7
Indiana	11.1%	14	33.0%	17	\$13.2	17
Iowa	8.8%	30	16.2%	37	\$3.0	33
Kansas	8.7%	32	19.5%	32	\$3.0	32
Kentucky	17.0%	3	60.9%	9	\$17.0	12

¹⁹ Data Source: WISERTrade.



State	2022 Exports as a Percentage of GDP	2022 State Rank	Exports % Growth 2012 to 2022	2022 State Rank	Exports \$ Growth 2012 to 2022	2022 State Rank
Louisiana	45.0%	1	79.3%	3	\$59.7	3
Maine	6.1%	42	23.6%	30	\$1.0	36
Maryland	9.5%	22	67.2%	7	\$19.0	9
Massachusetts	10.0%	20	30.7%	20	\$16.8	13
Michigan	12.4%	7	15.8%	38	\$10.8	22
Minnesota	9.2%	24	35.6%	15	\$11.1	21
Mississippi	13.0%	5	40.9%	13	\$5.4	26
Missouri	8.1%	36	54.9%	11	\$11.5	19
Montana	5.2%	48	31.8%	18	\$0.9	39
Nebraska	9.2%	26	45.5%	12	\$4.7	30
Nevada	9.1%	28	-11.3%	46	-\$2.6	47
New Hampshire	8.6%	34	110.4%	2	\$5.1	28
New Jersey	10.1%	19	24.4%	28	\$15.0	16
New Mexico	7.7%	40	120.1%	1	\$5.8	25
New York	11.5%	9	24.9%	27	\$45.7	4
North Carolina	7.9%	38	39.1%	14	\$15.9	14
North Dakota	8.9%	29	16.5%	36	\$0.9	38
Ohio	8.7%	31	18.0%	33	\$11.1	20
Oklahoma	4.6%	50	-7.7%	44	-\$1.0	44
Oregon	13.6%	4	75.0%	5	\$17.6	10
Pennsylvania	8.1%	37	25.0%	26	\$15.1	15
Rhode Island	6.0%	43	28.4%	21	\$1.0	37
South Carolina	12.9%	6	30.7%	19	\$9.2	23
South Dakota	5.2%	49	25.2%	24	\$0.7	40
Tennessee	10.0%	21	33.2%	16	\$12.3	18
Texas	23.2%	2	76.8%	4	\$241.3	1
Utah	11.1%	13	10.5%	41	\$2.7	34
Vermont	7.8%	39	-31.3%	49	-\$1.5	46
Virginia	10.5%	15	55.0%	10	\$24.6	6
Washington	11.4%	11	-7.6%	43	-\$6.9	49
West Virginia	9.4%	23	-27.7%	48	-\$3.6	48
Wisconsin	8.3%	35	17.3%	34	\$4.9	29
Wyoming	7.1%	41	11.1%	40	\$0.3	41

Key Takeaways – Statewide Exports

- Between 2012 and 2022:
 - Growth in Virginia exports outpaced the state’s overall growth in GDP (55.0 percent growth in exports vs. 48.4 percent growth in GDP).
 - Growth in Virginia’s exports significantly outpaced the national average (55.0 percent in Virginia vs. 39.4 percent nationally).
 - Without Virginia’s above-average growth in exports (55.0 percent in Virginia vs. 39.4 percent nationally) its below-average growth in GDP (48.4 percent in Virginia vs. 58.9 percent nationally) would have been worse.
- In 2022, Virginia’s exports were heavily weighted toward services, which comprised 64.1 percent of the state’s total exports.
- Between 2012 and 2022:
 - Growth in Virginia’s services exports outpaced the state’s goods exports (68.2 percent growth in services exports vs. 36.2 percent in goods exports).
 - Growth in Virginia services exports outpaced the national average (68.2 percent in Virginia vs. 38.4 percent nationally).
- In 2022, Professional and Business Services was Virginia’s largest export sector at \$16.9 billion and accounted for 24.4 percent of total exports, and Manufacturing was the state’s second-largest export sector at \$16.5 billion and accounted for 23.8 percent of total exports.
- Between 2012 and 2022:
 - Professional and Business Services experienced the largest dollar growth in exports at \$8.9 billion and the second-largest percentage growth at 111.7 percent.
 - Mining, Quarrying, and Oil and Gas Exploration experienced the second-largest dollar growth in exports at \$5.5 billion and the largest percentage growth at 1,423.9 percent.
- In 2022:
 - Virginia ranked 14th among the states in total exports; and, among VEDP’s eight identified competitor states, only Georgia (7th) and New Jersey (10th) ranked above Virginia.
 - Virginia ranked 24th among the states in goods exports, and six of VEDP’s eight identified competitor states (*i.e.*, Georgia at 11th, Kentucky at 16th, New Jersey at 12th, North Carolina at 14th, South Carolina at 19th, and Tennessee at 15th) ranked above Virginia.
 - Virginia ranked 5th among the states in services exports, and none of VEDP’s eight identified competitor states ranked above Virginia.
 - Virginia ranked 10th among the states in percentage growth of total exports between 2012 and 2022; and, among VEDP’s eight identified competitor states, only Georgia (8th), Kentucky (9th), and Maryland (7th) ranked above Virginia.
 - Virginia ranked 6th among the states in dollar growth of total exports between 2012 and 2022, and among VEDP’s eight identified competitor states only Georgia (5th) ranked above Virginia.



REGIONAL

GO Virginia Regions

GO Virginia is an economic and workforce development initiative that became operational in 2017. The institutional structure of GO Virginia includes a state-level Growth and Opportunity Board, nine Regional Councils, and the GO Virginia Foundation. The Growth and Opportunity Board is responsible for overseeing the nine Regional Councils and awarding allocated funds to selected development projects proposed by the Regional Councils. Administrative support for both the Growth and Opportunity Board and the Regional Councils is provided by the Virginia Department of Housing and Community Development. The GO Virginia Foundation further supports these efforts through advocacy and providing information on best practices.

The nine Regional Councils are each responsible for a given region. These regions encompass multiple, contiguous, local jurisdictions that share similar economic and workforce development needs. The regional analysis in this report is based on these nine GO Virginia Regions, the boundaries of which are geographically depicted in Figure 8.

Figure 8: GO Virginia Regions



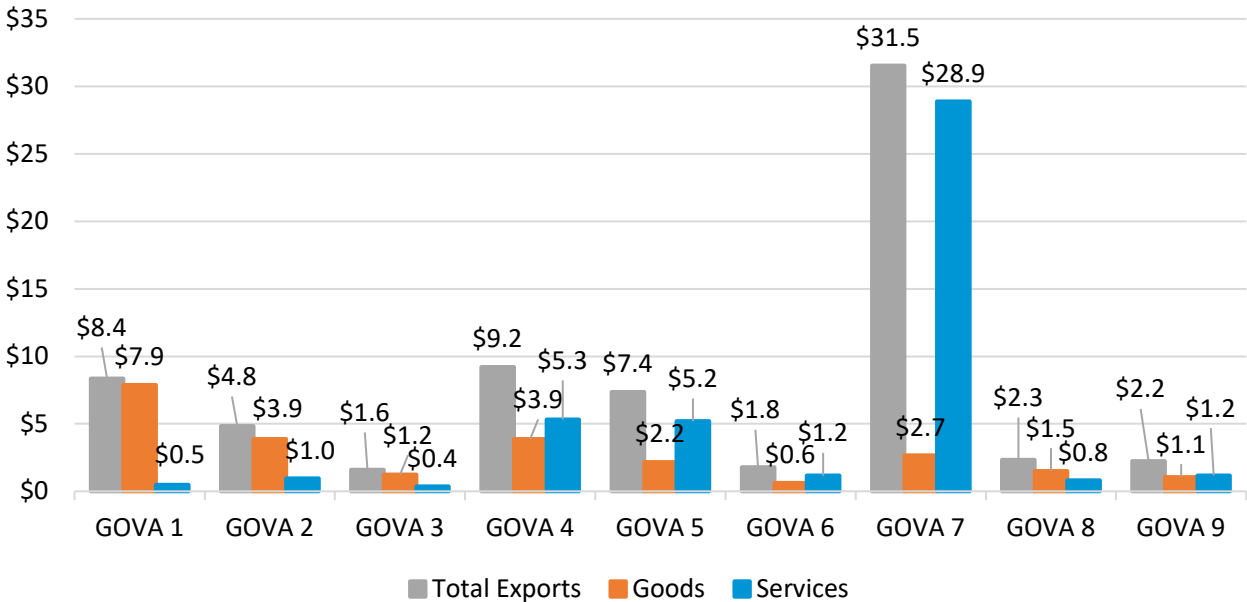


Regional Totals

Figure 9 presents data on goods and services exports from each of the nine GO Virginia Regions in 2022. The key observations are that in 2022:

- At \$31.5 billion, Region 7 was by far the largest exporter among the GO Virginia Regions followed by Region 4 at \$9.2 billion and Region 1 at \$8.4 billion.
- Goods exports dominated in Region 1 at \$7.9 billion, Region 2 at \$3.9 billion, Region 8 at \$1.5 billion, and Region 3 at \$1.2 billion.
- Services exports dominated in Region 7 at \$28.9 billion, Region 4 at \$5.3 billion, Region 5 at \$5.2 billion, Region 6 at \$1.2 billion, and Region 9 at \$1.2 billion.

Figure 9: Exports by GO Virginia Region in 2022 (billions of 2022 dollars)²⁰

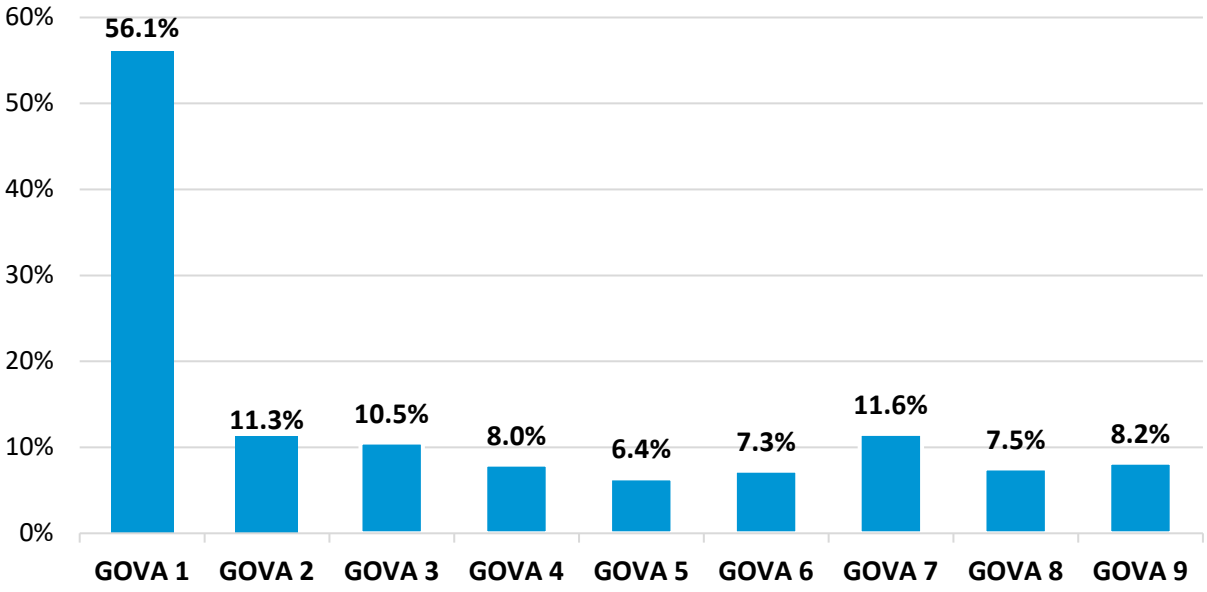


²⁰ Data Source: WISERTrade.



Figure 10 provides information on each Region’s export intensity or the proportion of the region’s total economic output that went to exports in 2022. As these data show, at 56.1 percent, Region 1 (a key coal-producing region of the state) led the other regions in export intensity by a wide margin. Region 1 was followed by Region 7 at 11.6 percent and Region 2 at 11.3 percent.

Figure 8: Export-Intensity by GO Virginia Region in 2022²¹



²¹ Data Source: WISERTrade and IMPLAN.

Regional Detail

In this portion of the section, we drill down into the top-line numbers for each region to provide additional detail.

Region 1²²

Table 6 details the top-ten exports from Region 1 in 2022. As these data show, the Region's exports were heavily dominated by Coal Mining.

Table 6: GO Virginia Region 1 Top-Ten Exports in 2022 (millions of 2022 dollars)

Code	Description	2022 Exports
2121	Coal Mining	\$6,539.0
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	\$152.3
3261	Plastics Product Manufacturing	\$118.8
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$97.5
3241	Petroleum and Coal Products Manufacturing	\$89.6
3339	Other General Purpose Machinery Manufacturing	\$89.3
2111	Oil and Gas Extraction	\$72.6
3363	Motor Vehicle Parts Manufacturing	\$67.6
3132	Fabric Mills	\$63.6
3331	Agriculture, Construction, and Mining Machinery Manufacturing	\$62.1
	Top-Ten Total	\$7,352.3
	Percentage of Regional Exports	88.0%
	Total Exports	\$8,352.8
	Regional GDP	\$14,891.3
	Exports as a % of Regional GDP	56.1%

²² Region 1 includes the cities of Bristol, Galax, and Norton; and the counties of Bland, Buchanan, Carroll, Dickenson, Grayson, Lee, Russell, Scott, Smyth, Tazewell, Washington, Wise, and Wythe.

Table 7 provides a breakout of total exports by locality in Region 1. As these data show, Buchanan County leads other localities in the Region in goods exports by a wide margin; and Washington County leads other localities in the Region in services exports by a wide margin.

Table 7: GO Virginia Region 1 Detail by Locality in 2022 (millions of 2022 dollars)

Locality	Total Exports	Goods Exports	Services Exports	Export Intensity ²³
Bland County	\$35.0	\$24.4	\$10.6	11.6%
City of Bristol	\$264.7	\$220.2	\$44.5	23.6%
Buchanan County	\$5,523.5	\$5,487.8	\$35.7	n/a
Carroll County	\$108.7	\$72.3	\$36.4	16.9%
Dickenson County	\$311.9	\$301.7	\$10.2	n/a
City of Galax	\$35.0	\$13.8	\$21.2	6.7%
Grayson County	\$30.0	\$16.5	\$13.5	8.7%
Lee County	\$114.7	\$98.6	\$16.2	17.8%
City of Norton	\$60.0	\$47.3	\$12.6	17.5%
Russell County	\$48.9	\$25.1	\$23.8	6.0%
Scott County	\$58.3	\$43.9	\$14.4	10.6%
Smyth County	\$181.2	\$163.0	\$18.3	15.2%
Tazewell County	\$799.6	\$736.8	\$62.7	n/a
Washington County	\$346.6	\$246.0	\$100.6	14.1%
Wise County	\$202.8	\$174.9	\$27.9	14.8%
Wythe County	\$232.0	\$198.5	\$33.5	16.7%

²³ n/a: WISERTrade export total accounts for most of or more than the GDP for the city or county.



Region 2²⁴

Table 8 details the top-ten exports from Region 2 in 2022. These data indicate that the Region’s exports were heavily dominated by Pulp, Paper, and Paperboard Mills, and Motor Vehicle and Motor Vehicle Parts Manufacturing.

Table 8: GO Virginia Region 2 Top-Ten Exports in 2022 (millions of 2022 dollars)

Code	Description	2022 Exports
3221	Pulp, Paper, and Paperboard Mills	\$750.9
3361	Motor Vehicle Manufacturing	\$512.2
3363	Motor Vehicle Parts Manufacturing	\$313.4
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$226.0
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	\$191.9
5416	Management, Scientific, and Technical Consulting Services	\$178.4
3353	Electrical Equipment Manufacturing	\$145.5
3344	Semiconductor and Other Electronic Component Manufacturing	\$139.2
3254	Pharmaceutical and Medicine Manufacturing	\$128.0
3341	Computer and Peripheral Equipment Manufacturing	\$113.2
Top-Ten Total		\$2,698.8
Percentage of Regional Exports		55.8%
Total Exports		\$4,834.0
Regional GDP		\$42,811.7
Exports as a % of Regional GDP		11.3%

²⁴ Region 2 includes the cities of Covington, Lynchburg, Radford, Roanoke, and Salem; and the counties of Alleghany, Amherst, Appomattox, Bedford, Botetourt, Campbell, Craig, Floyd, Franklin, Giles, Montgomery, Pulaski, and Roanoke.

Table 9 provides a breakout of total exports by locality. These data indicate that the City of Lynchburg, Pulaski County, Montgomery County, and the City of Covington lead other localities in the Region in goods exports; and the City of Lynchburg, the City of Roanoke, Roanoke County, Montgomery County, and Botetourt County leads other localities in the Region in services exports.

Table 9: GO Virginia Region 2 Detail by Locality in 2022 (millions of 2022 dollars)

Locality	Total Exports	Goods Exports	Services Exports	Export Intensity ²⁵
Alleghany County	\$90.3	\$84.1	\$6.2	23.9%
Amherst County	\$238.6	\$216.2	\$22.4	25.6%
Appomattox County	\$19.2	\$11.5	\$7.7	4.9%
Bedford County	\$235.6	\$177.0	\$58.6	9.2%
Botetourt County	\$248.6	\$154.6	\$94.0	15.7%
Campbell County	\$148.3	\$114.0	\$34.3	5.6%
City of Covington	\$441.0	\$432.5	\$8.4	n/a
Craig County	\$6.9	\$1.3	\$5.6	5.6%
Floyd County	\$99.6	\$89.8	\$9.8	22.5%
Franklin County	\$141.1	\$104.8	\$36.3	7.2%
Giles County	\$90.8	\$72.5	\$18.3	13.5%
City of Lynchburg	\$811.5	\$641.0	\$170.5	13.2%
Montgomery County	\$587.2	\$479.7	\$107.5	11.2%
Pulaski County	\$594.8	\$555.0	\$39.8	33.7%
City of Radford	\$94.2	\$79.5	\$14.7	14.2%
City of Roanoke	\$378.2	\$236.0	\$142.2	4.3%
Roanoke County	\$389.1	\$270.3	\$118.8	7.3%
City of Salem	\$219.0	\$163.4	\$55.6	8.5%

²⁵ n/a: WISERTrade export total accounts for most of or more than the GDP for the city or county.

Region 3²⁶

Table 10 details the top-ten exports from Region 3 in 2022. As these data demonstrate, the Region’s exports were heavily dominated by Fabric Mills, Plastic Product Manufacturing, and Management, Scientific, and Technical Consulting Services.

Table 10: GO Virginia Region 3 Top-Ten Exports in 2022 (millions of 2022 dollars)

Code	Description	2022 Exports
3132	Fabric Mills	\$264.3
3261	Plastics Product Manufacturing	\$195.7
5416	Management, Scientific, and Technical Consulting Services	\$101.5
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$75.2
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	\$69.4
3211	Sawmills and Wood Preservation	\$67.1
1119	Other Crop Farming	\$59.0
1133	Logging	\$45.1
1111	Oilseed and Grain Farming	\$40.2
4239	Miscellaneous Durable Goods Merchant Wholesalers	\$39.6
	Top-Ten Total	\$957.3
	Percentage of Regional Exports	60.3%
	Total Exports	\$1,588.2
	Regional GDP	\$15,071.5
	Exports as a % of Regional GDP	10.5%

²⁶ Region 3 includes the cities of Danville and Martinsville; and the counties of Amelia, Brunswick, Buckingham, Charlotte, Cumberland, Halifax, Henry, Lunenburg, Mecklenburg, Nottoway, Patrick, Pittsylvania, and Prince Edward.

Table 11 provides a breakout of total exports by locality. As these data demonstrate, Henry County leads other localities in the Region in goods exports by a wide margin; and Henry County and the City of Danville lead other localities in the Region in services exports.

Table 11: GO Virginia Region 3 Detail by Locality in 2022 (millions of 2022 dollars)

Locality	Total Exports	Goods Exports	Services Exports	Export Intensity
Amelia County	\$38.2	\$27.6	\$10.6	9.8%
Brunswick County	\$44.9	\$37.1	\$7.8	11.2%
Buckingham County	\$57.3	\$48.9	\$8.4	13.1%
Charlotte County	\$50.8	\$35.6	\$15.2	13.1%
Cumberland County	\$13.8	\$8.4	\$5.4	6.9%
City of Danville	\$166.6	\$89.5	\$77.1	5.6%
Halifax County	\$152.5	\$115.8	\$36.7	9.6%
Henry County	\$619.6	\$542.1	\$77.5	37.5%
Lunenburg County	\$49.2	\$40.4	\$8.8	10.8%
City of Martinsville	\$28.0	\$3.9	\$24.1	2.9%
Mecklenburg County	\$75.7	\$48.4	\$27.4	5.3%
Nottoway County	\$49.5	\$33.4	\$16.1	7.4%
Patrick County	\$36.3	\$30.1	\$6.2	5.6%
Pittsylvania County	\$171.3	\$155.9	\$15.5	8.7%
Prince Edward County	\$34.6	\$14.6	\$20.0	3.8%

Region 4²⁷

Table 12 details the top-ten exports from Region 4 in 2022. As these data show, the Region's exports were heavily dominated by Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property), Non-depository Credit Intermediation, Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing, and Management, Scientific, and Technical Consulting Services.

Table 12: GO Virginia Region 4 Top-Ten Exports in 2022 (millions of 2022 dollars)

Code	Description	2022 Exports
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$1,570.8
5222	Non-depository Credit Intermediation	\$1,085.1
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	\$895.8
5416	Management, Scientific, and Technical Consulting Services	\$858.6
5259	Other Investment Pools and Funds	\$464.8
3251	Basic Chemical Manufacturing	\$379.5
3221	Pulp, Paper, and Paperboard Mills	\$283.5
3254	Pharmaceutical and Medicine Manufacturing	\$227.0
3329	Other Fabricated Metal Product Manufacturing	\$208.2
4239	Miscellaneous Durable Goods Merchant Wholesalers	\$193.2
	Top-Ten Total	\$6,166.5
	Percentage of Regional Exports	67.0%
	Total Exports	\$9,207.1
	Regional GDP	\$115,429.5
	Exports as a % of Regional GDP	8.0%

²⁷ Region 4 includes the cities Colonial Heights, Emporia, Hopewell, Petersburg, and Richmond; and the counties of Charles City, Chesterfield, Dinwiddie, Goochland, Greensville, Hanover, Henrico, New Kent, Powhatan, Prince George, Surry, and Sussex.

Table 13 provides a breakout of total exports by locality. As these data show, the City of Hopewell and Chesterfield County lead other localities in the Region in goods exports; and Henrico County and the City of Richmond lead other localities in the Region in services exports.

Table 13: GO Virginia Region 4 Detail by Locality in 2022 (millions of 2022 dollars)

Locality	Total Exports	Goods Exports	Services Exports	Export Intensity ²⁸
Charles City County	\$25.9	\$19.8	\$6.1	10.6%
Chesterfield County	\$1,309.9	\$797.0	\$512.9	6.3%
City of Colonial Heights	\$38.3	\$19.9	\$18.4	4.0%
Dinwiddie County	\$178.7	\$107.8	\$70.9	14.4%
City of Emporia	\$6.9	\$0.7	\$6.2	1.9%
Goochland County	\$757.7	\$16.4	\$741.3	19.2%
Greensville County	\$56.2	\$36.4	\$19.8	9.9%
Hanover County	\$710.0	\$296.7	\$413.3	8.8%
Henrico County	\$2,332.3	\$436.7	\$1,895.7	6.4%
City of Hopewell	\$1,311.7	\$1,300.2	\$11.5	n/a
New Kent County	\$155.5	\$23.5	\$132.0	18.6%
City of Petersburg	\$149.7	\$137.9	\$11.8	9.9%
Powhatan County	\$50.7	\$18.2	\$32.5	4.6%
Prince George County	\$457.5	\$245.3	\$212.2	14.7%
City of Richmond	\$1,589.7	\$370.4	\$1,219.2	4.7%
Surry County	\$22.2	\$16.8	\$5.5	2.4%
Sussex County	\$54.2	\$40.1	\$14.1	12.0%

²⁸ n/a: WISERTrade export total accounts for most of or more than the GDP for the city or county.

Region 5²⁹

Table 14 details the top-ten exports from Region 5 in 2022. These data indicate that the Region’s exports were heavily dominated by Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property), Management, Scientific, and Technical Consulting Services, and Deep Sea, Coastal, and Great Lakes Water Transportation.

Table 14: GO Virginia Region 5 Top-Ten Exports in 2022 (millions of 2022 dollars)

Code	Description	2022 Exports
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$1,428.5
5416	Management, Scientific, and Technical Consulting Services	\$847.8
4831	Deep Sea, Coastal, and Great Lakes Water Transportation	\$438.7
3339	Other General Purpose Machinery Manufacturing	\$270.9
5222	Non-depository Credit Intermediation	\$246.0
7211	Traveler Accommodation	\$228.6
5413	Architectural, Engineering, and Related Services	\$204.6
4239	Miscellaneous Durable Goods Merchant Wholesalers	\$199.6
5182	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	\$174.9
5417	Scientific Research and Development Services	\$160.8
	Top-Ten Total	\$4,200.5
	Percentage of Regional Exports	57.1%
	Total Exports	\$7,358.6
	Regional GDP	\$115,066.8
	Exports as a % of Regional GDP	6.4%

²⁹ Region 5 includes the cities of Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg; and the counties of Accomack, Isle of Wight, James City, Northampton, Southampton, and York.

Table 15 provides a breakout of total exports by locality. These data indicate that the cities of Chesapeake, Virginia Beach, Newport News, and Suffolk lead other localities in the Region in goods exports; and the cities of Virginia Beach and Norfolk lead other localities in the Region in services exports.

Table 15: GO Virginia Region 5 Detail by Locality in 2022 (millions of 2022 dollars)

Locality	Total Exports	Goods Exports	Services Exports	Export Intensity
Accomack County	\$150.1	\$87.6	\$62.4	7.3%
City of Chesapeake	\$904.2	\$421.1	\$483.1	6.7%
City of Franklin	\$18.2	\$7.6	\$10.7	5.1%
City of Hampton	\$382.3	\$122.9	\$259.3	4.9%
Isle of Wight County	\$137.7	\$106.9	\$30.8	9.6%
James City County	\$236.8	\$70.0	\$166.8	6.1%
City of Newport News	\$606.5	\$302.0	\$304.5	3.9%
City of Norfolk	\$1,222.0	\$178.5	\$1,043.5	5.1%
Northampton County	\$75.2	\$27.0	\$48.1	13.1%
City of Poquoson	\$4.9	\$0.5	\$4.4	2.1%
City of Portsmouth	\$351.5	\$36.4	\$315.2	4.9%
Southampton County	\$121.8	\$114.2	\$7.6	20.2%
City of Suffolk	\$417.9	\$269.1	\$148.8	8.8%
City of Virginia Beach	\$2,418.2	\$319.3	\$2,098.9	8.4%
City of Williamsburg	\$79.0	\$1.7	\$77.4	5.8%
York County	\$232.1	\$102.1	\$130.0	7.8%

Region 6³⁰

Table 16 details the top-ten exports from Region 6 in 2022. As these data indicate, the Region’s exports were heavily dominated by Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property) and Management, Scientific, and Technical Consulting Services.

Table 16: GO Virginia Region 6 Top-Ten Exports in 2022 (millions of 2022 dollars)

Code	Description	2022 Exports
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$416.7
5416	Management, Scientific, and Technical Consulting Services	\$366.5
1111	Oilseed and Grain Farming	\$97.3
4239	Miscellaneous Durable Goods Merchant Wholesalers	\$59.3
5413	Architectural, Engineering, and Related Services	\$42.7
5182	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	\$41.9
3221	Pulp, Paper, and Paperboard Mills	\$40.2
3219	Other Wood Product Manufacturing	\$37.6
3222	Converted Paper Product Manufacturing	\$35.8
7211	Traveler Accommodation	\$31.5
Top-Ten Total		\$1,169.6
Percentage of Regional Exports		65.5%
Total Exports		\$1,784.6
Regional GDP		\$24,538.2
Exports as a % of Regional GDP		7.3%

³⁰ Region 6 includes the city of Fredericksburg; and the counties of Caroline, Essex, Gloucester, King and Queen, King George, King William, Lancaster, Mathews, Middlesex, Northumberland, Richmond, Spotsylvania, Stafford, and Westmoreland.

Table 17 provides a breakout of total exports by locality. As these data indicate, Stafford County leads other localities in the Region in goods and services exports.

Table 17: GO Virginia Region 6 Detail by Locality in 2022 (millions of 2022 dollars)

Locality	Total Exports	Goods Exports	Services Exports	Export Intensity
Caroline County	\$61.0	\$36.1	\$25.0	6.5%
Essex County	\$44.9	\$31.4	\$13.5	10.3%
City of Fredericksburg	\$179.1	\$72.6	\$106.5	5.6%
Gloucester County	\$76.7	\$53.7	\$23.0	6.1%
King and Queen County	\$24.0	\$20.8	\$3.2	14.2%
King George County	\$100.9	\$21.8	\$79.2	4.1%
King William County	\$84.0	\$65.1	\$18.9	13.5%
Lancaster County	\$49.5	\$14.9	\$34.6	8.5%
Mathews County	\$14.9	\$5.3	\$9.6	6.9%
Middlesex County	\$33.1	\$11.1	\$22.0	8.8%
Northumberland County	\$61.8	\$46.2	\$15.6	13.1%
Richmond County	\$26.2	\$15.1	\$11.0	7.9%
Spotsylvania County	\$248.5	\$68.6	\$179.8	5.0%
Stafford County	\$730.2	\$122.9	\$607.3	9.1%
Westmoreland County	\$49.9	\$36.3	\$13.6	11.3%

Region 7³¹

Table 18 details the top-ten exports from Region 7 in 2022. These data reveal that the Region’s exports were heavily dominated by Management, Scientific, and Technical Consulting Services, Software Publishers, and Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property).

Table 18: GO Virginia Region 7 Top-Ten Exports in 2022 (millions of 2022 dollars)

Code	Description	2022 Exports
5416	Management, Scientific, and Technical Consulting Services	\$11,070.7
5132	Software Publishers	\$5,058.2
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$4,994.0
5182	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	\$2,092.1
5222	Non-depository Credit Intermediation	\$1,655.4
3344	Semiconductor and Other Electronic Component Manufacturing	\$667.5
4811	Scheduled Air Transportation	\$654.1
5413	Architectural, Engineering, and Related Services	\$575.2
3341	Computer and Peripheral Equipment Manufacturing	\$503.2
5417	Scientific Research and Development Services	\$494.3
Top-Ten Total		\$27,764.7
Percentage of Regional Exports		88.1%
Total Exports		\$31,531.5
Regional GDP		\$272,831.8
Exports as a % of Regional GDP		11.6%

³¹ Region 7 includes the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park; and the counties of Arlington, Fairfax, Loudoun, and Prince William.

Table 19 provides a breakout of total exports by locality. These data reveal that the City of Manassas, Loudoun County, and Fairfax County lead other localities in the Region in goods exports; and Fairfax County leads other localities in the Region in services exports by a wide margin.

Table 19: GO Virginia Region 7 Detail by Locality in 2022 (millions of 2022 dollars)

Locality	Total Exports	Goods Exports	Services Exports	Export Intensity
Alexandria	\$1,239.0	\$72.8	\$1,166.2	6.9%
Arlington County	\$4,894.5	\$146.7	\$4,747.7	10.7%
City of Fairfax	\$155.3	\$19.3	\$136.0	4.7%
Fairfax County	\$19,024.7	\$649.7	\$18,375.0	13.4%
City of Falls Church	\$87.2	\$2.6	\$84.6	3.8%
Loudoun County	\$3,916.3	\$704.7	\$3,211.6	11.5%
City of Manassas	\$820.7	\$724.6	\$96.1	20.0%
City of Manassas Park	\$18.6	\$9.8	\$8.8	2.8%
Prince William County	\$1,375.3	\$324.8	\$1,050.5	6.2%

Region 8³²

Table 20 details the top-ten exports from Region 8 in 2022. As these data show, the Region’s exports were heavily dominated by Animal Slaughtering and Processing, Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property), and Plastics Product Manufacturing.

Table 20: GO Virginia Region 8 Top-Ten Exports in 2022 (millions of 2022 dollars)

Code	Description	2022 Exports
3116	Animal Slaughtering and Processing	\$241.5
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$205.5
3261	Plastics Product Manufacturing	\$173.0
5416	Management, Scientific, and Technical Consulting Services	\$137.9
3219	Other Wood Product Manufacturing	\$102.3
3231	Printing and Related Support Activities	\$92.8
7211	Traveler Accommodation	\$89.2
3329	Other Fabricated Metal Product Manufacturing	\$62.0
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	\$58.5
5222	Non-depository Credit Intermediation	\$57.4
	Top-Ten Total	\$1,220.1
	Percentage of Regional Exports	52.4%
	Total Exports	\$2,328.2
	Regional GDP	\$30,913.4
	Exports as a % of Regional GDP	7.5%

³² Region 8 includes the cities of Buena Vista, Harrisonburg, Lexington, Staunton, Waynesboro, and Winchester; and the counties of Augusta, Bath, Clarke, Frederick, Highland, Page, Rockbridge, Rockingham, Shenandoah, and Warren.

Table 21 provides a breakout of total exports by locality. As these data show, Augusta County, Frederick County, and Rockingham County lead other localities in the Region in goods exports; and Frederick County, Rockingham County, and the City of Harrisonburg lead other localities in the Region in services exports.

Table 21: GO Virginia Region 8 Detail by Locality in 2022 (millions of 2022 dollars)

Locality	Total Exports	Goods Exports	Services Exports	Export Intensity
Augusta County	\$334.9	\$290.5	\$44.4	8.2%
Bath County	\$59.7	\$10.5	\$49.1	21.0%
City of Buena Vista	\$37.8	\$29.6	\$8.2	15.4%
Clarke County	\$69.5	\$39.1	\$30.3	11.8%
Frederick County	\$365.3	\$244.1	\$121.3	6.2%
City of Harrisonburg	\$232.9	\$131.5	\$101.3	6.6%
Highland County	\$11.2	\$8.2	\$3.1	18.4%
City of Lexington	\$28.0	\$0.3	\$27.7	4.2%
Page County	\$56.8	\$29.3	\$27.5	8.3%
Rockbridge County	\$53.2	\$36.9	\$16.3	7.4%
Rockingham County	\$337.0	\$230.7	\$106.3	7.0%
Shenandoah County	\$188.1	\$146.2	\$41.9	8.8%
City of Staunton	\$51.6	\$26.6	\$25.0	4.0%
Warren County	\$91.2	\$44.1	\$47.1	5.5%
City of Waynesboro	\$223.5	\$147.3	\$76.2	21.2%
City of Winchester	\$187.6	\$97.5	\$90.0	5.9%

Region 9³³

Table 22 details the top-ten exports from Region 9 in 2022. These data indicate that the Region’s exports were heavily dominated by Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property), Management, Scientific, and Technical Consulting Services, Converted Paper Product Manufacturing, and Aerospace Product and Parts Manufacturing.

Table 22: GO Virginia Region 9 Top-Ten Exports in 2022 (millions of 2022 dollars)

Code	Description	2022 Exports
5331	Lessors of Nonfinancial Intangible Assets (Licensing of Intellectual Property)	\$412.7
5416	Management, Scientific, and Technical Consulting Services	\$280.3
3222	Converted Paper Product Manufacturing	\$222.0
3364	Aerospace Product and Parts Manufacturing	\$175.5
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	\$72.9
3261	Plastics Product Manufacturing	\$68.9
3344	Semiconductor and Other Electronic Component Manufacturing	\$67.1
5132	Software Publishers	\$57.2
7211	Traveler Accommodation	\$55.8
5417	Scientific Research and Development Services	\$48.9
	Top-Ten Total	\$1,461.2
	Percentage of Regional Exports	65.5%
	Total Exports	\$2,230.6
	Regional GDP	\$27,187.2
	Exports as a % of Regional GDP	8.2%

³³ Region 9 includes the city of Charlottesville; and the counties of Albemarle, Culpeper, Fauquier, Fluvanna, Greene, Louisa, Madison, Nelson, Orange, and Rappahannock.

Table 23 provides a breakout of total exports by locality. These data indicate that Orange County and Albemarle County lead other localities in the Region in goods exports; and Albemarle County, Fauquier County, and the City of Charlottesville lead other localities in the Region in services exports.

Table 23: GO Virginia Region 9 Detail by Locality in 2022 (millions of 2022 dollars)

Locality	Total Exports	Goods Exports	Services Exports	Export Intensity
Albemarle County	\$603.3	\$248.9	\$354.4	7.0%
City of Charlottesville	\$328.8	\$55.0	\$273.8	5.5%
Culpeper County	\$147.9	\$92.9	\$54.9	6.0%
Fauquier County	\$382.0	\$66.9	\$315.1	10.0%
Fluvanna County	\$30.4	\$10.1	\$20.3	3.7%
Greene County	\$30.2	\$5.9	\$24.3	5.8%
Louisa County	\$161.5	\$132.5	\$28.9	7.2%
Madison County	\$47.2	\$22.0	\$25.2	10.9%
Nelson County	\$68.3	\$29.0	\$39.3	11.5%
Orange County	\$412.5	\$388.9	\$23.6	28.9%
Rappahannock County	\$18.6	\$6.6	\$12.0	7.1%

Key Takeaways – Regional Exports

- Our regional analysis is based on the nine GO Virginia Regions.
- In 2022:
 - At \$31.5 billion, Region 7 (Northern Virginia) was by far the largest exporter among the GO Virginia Regions. Region 7 was followed by Region 4 (Greater Richmond Area) at \$9.2 billion and Region 1 (Southwest Virginia) at \$8.4 billion.
 - Goods exports dominated in Region 1 (Southwest Virginia) at \$7.9 billion, Region 2 (Greater Roanoke and Lynchburg area) at \$3.9 billion, Region 8 (Shenandoah Valley) at \$1.5 billion, and Region 3 (Southern Virginia) at \$1.2 billion.
 - Services exports dominated in Region 7 (Northern Virginia) at \$28.9 billion, Region 4 (Greater Richmond Area) at \$5.3 billion, Region 5 (Hampton Roads) at \$5.2 billion, Region 6 (Fredericksburg, Middle Peninsula, and Northern Neck) at \$1.2 billion, and Region 9 (Greater Charlottesville area) at \$1.2 billion.



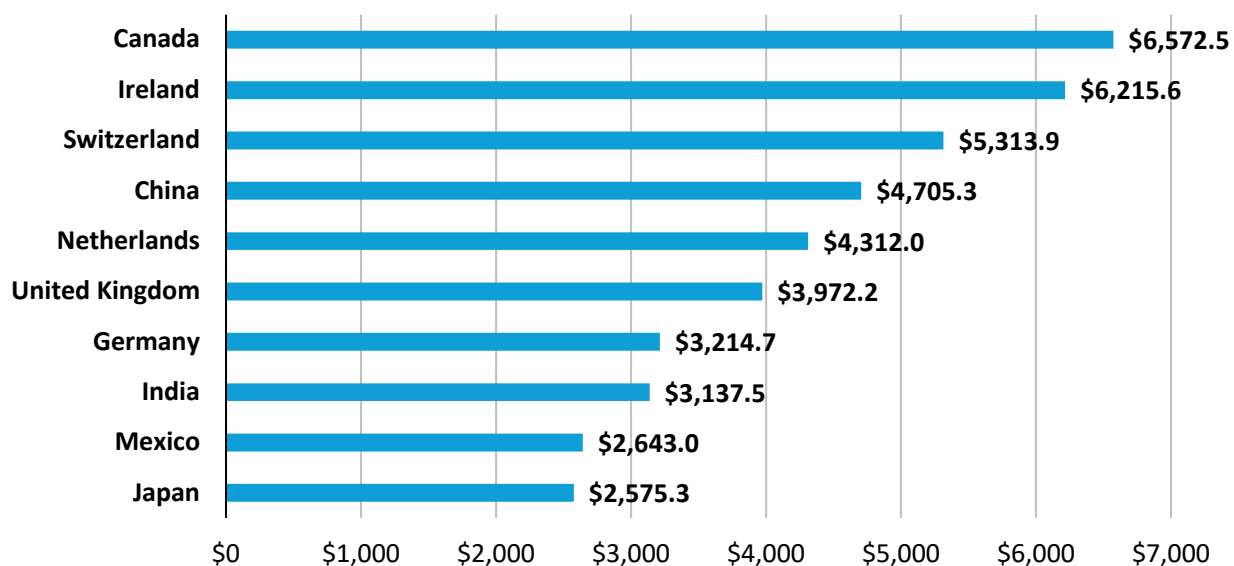
TOP EXPORT MARKETS

In this portion of the section, we round out our analysis with an assessment of Virginia’s top-ten export markets in 2022.

Top-Ten Totals

Figure 11 ranks Virginia’s top-ten export markets in 2022 by value of total exports (*i.e.*, goods and services combined). As these data show, Canada was Virginia’s top export market that year at \$6.6 billion, followed by Ireland at \$6.2 billion, and Switzerland at \$5.3 billion.

Figure 11: Virginia’s Top-Ten Export Markets in 2022 for Total Exports (millions of 2022 dollars)³⁴

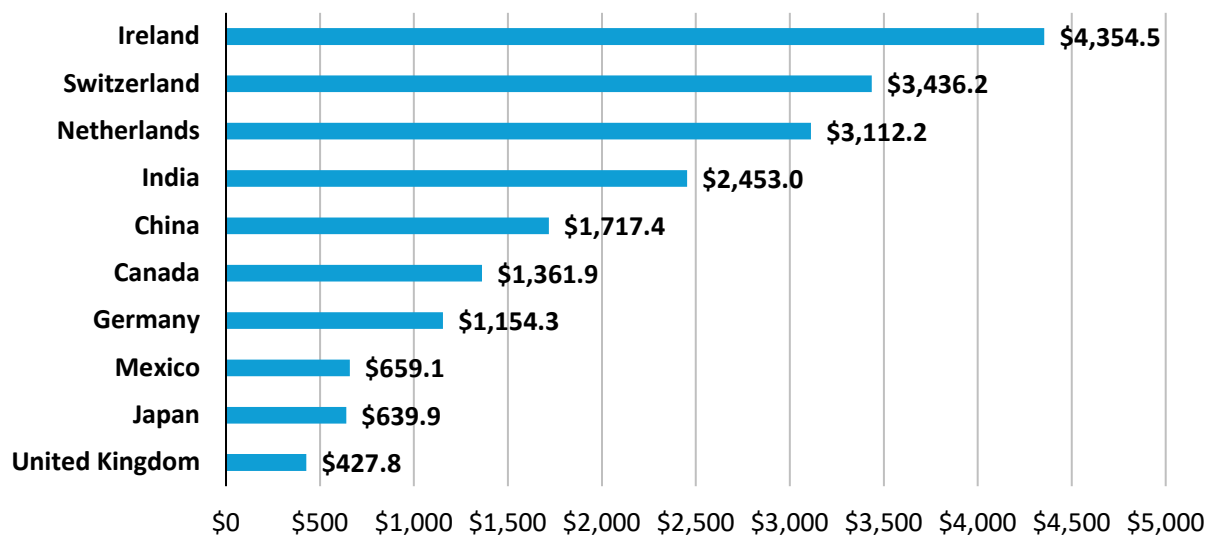


³⁴ Data Source: WISERTrade



Figure 12 provides another perspective on these top-ten export markets by ranking them according to dollar growth in exports between 2012 and 2022. Virginia’s exports to Ireland grew by \$4.4 billion (the largest dollar value) over the period followed by Switzerland at \$3.4 billion, and the Netherlands at \$3.1 billion.

Figure 12: Growth in Virginia’s Top-Ten Export Markets between 2012 and 2022 (millions of 2022 dollars)³⁵



³⁵ Data Source: WISERTrade

Top-Ten Details

Canada

At \$6.6 billion in exports, Canada was Virginia's largest export market in 2022. Goods exports accounted for the largest share of that total at \$3.5 billion, with services exports at \$3.1 billion. Between 2012 and 2022, the largest increase in Virginia exports to Canada was in services which increased by \$1.1 billion or 53.7 percent. Goods exports increased by \$0.3 billion or 8.7 percent over the period.

At a sector level, in 2022, exports from Virginia to Canada were led by:

- Other Business Services at \$1.1 billion, where the lead driver industries were
 - Professional and Management Consulting Services and
 - Technical Services.
- Telecommunications, Computer, and Information Services at \$1.1 billion, where the lead driver industry was Computer Services.
- Transportation Equipment at \$0.7 billion, where the lead driver industries were
 - Motor Vehicles (primarily heavy- and medium-duty trucks),
 - Motor Vehicle Bodies and Trailers, and
 - Motor Vehicle Parts.
- Computer and Electronic Products at \$0.4 billion, where the lead driver industries were
 - Computer Equipment and
 - Semiconductors and Other Electronic Components.
- Machinery, Except Electrical at \$0.3 billion, where the lead driver industries were
 - Other General Purpose Machinery,
 - Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment, and
 - Agriculture and Construction Machinery.

Table 24: Virginia's Exports to Canada 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$5,210.5	\$6,572.5	\$1,362.0	26.1%
Goods	\$3,194.3	\$3,473.3	\$279.0	8.7%
Services	\$2,016.2	\$3,099.2	\$1,083.0	53.7%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Other Business Services	\$723.4	\$1,140.4	\$417.0	57.6%
Telecommunications, Computer, and Information Services	\$359.3	\$1,078.6	\$719.3	200.2%
Transportation Equipment	\$698.0	\$726.0	\$28.0	4.0%
Computer And Electronic Products	\$334.2	\$355.8	\$21.6	6.5%
Machinery, Except Electrical	\$313.6	\$329.4	\$15.8	5.0%

Ireland

At \$6.2 billion in exports, Ireland was Virginia's second-largest export market in 2022. Services exports accounted for the largest share of that total at \$6.1 billion, with goods exports at \$0.1 billion. Between 2012 and 2022, the largest increase in Virginia exports to Ireland was in services which increased by \$4.3 billion or 243.1 percent. Goods exports increased by \$0.04 billion or 45.9 percent over the period.

At a sector level, in 2022 exports from Virginia to Ireland were led by:

- Other Business Services at \$3.9 billion, where the lead driver industries were
 - Professional and Management Consulting Services and
 - Research and Development Services.
- Charges for the Use of Intellectual Property at \$1.9 billion, where the lead driver industries were
 - Research and Development Licensing and
 - Software Licensing.
- Telecommunications, Computer, and Information Services at \$0.2 billion, where the lead driver industry was Computer Services.
- Financial Services at \$0.1 billion, where the lead driver industry was Credit Card and Other Credit-Related Services.
- Chemicals at \$0.1 billion, where the lead driver industry was Pharmaceuticals and Medicines.

Table 25: Virginia's Exports to Ireland 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$1,861.1	\$6,215.6	\$4,354.5	234.0%
Goods	\$85.9	\$125.3	\$39.4	45.9%
Services	\$1,775.1	\$6,090.3	\$4,315.2	243.1%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Other Business Services	\$610.6	\$3,922.8	\$3,312.2	542.5%
Charges for the Use of Intellectual Property	\$1,008.5	\$1,864.1	\$855.6	84.8%
Telecommunications, Computer, and Information Services	\$66.2	\$201.5	\$135.3	204.4%
Financial Services	\$65.4	\$72.5	\$7.1	10.9%
Chemicals	\$7.1	\$65.2	\$58.1	818.3%

Switzerland

At \$5.3 billion in exports, Switzerland was Virginia’s third-largest export market in 2022. Services exports accounted for the largest share of that total at \$5.2 billion, with goods exports at \$0.1 billion. Between 2012 and 2022, the largest increase in Virginia exports to Switzerland was in services which increased by \$3.5 billion or 203.7 percent. Goods exports decreased by \$0.04 billion or minus 22.3 percent over the period.

At a sector level, in 2022, exports from Virginia to Switzerland were led by:

- Charges for the Use of Intellectual Property at \$2.5 billion, where the lead driver industries were
 - Research and Development Licensing and
 - Franchise and Trademarks.
- Other Business Services at \$2.1 billion, where the lead driver industries were
 - Professional and Management Consulting Services and
 - Research and Development Services.
- Telecommunications, Computer, and Information Services at \$0.5 billion, where the lead driver industry was Computer Services.
- Agricultural Products at \$0.1 billion, where the lead driver industry was Other Agricultural Products.
- Transport at \$0.1 billion, where the lead driver industry was Transport by Water.

Table 26: Virginia's Exports to Switzerland 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$1,877.7	\$5,313.9	\$3,436.2	183.0%
Goods	\$171.6	\$133.3	-\$38.3	-22.3%
Services	\$1,706.0	\$5,180.5	\$3,474.5	203.7%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Charges for the Use of Intellectual Property	\$781.3	\$2,467.7	\$1,686.4	215.8%
Other Business Services	\$587.2	\$2,104.8	\$1,517.6	258.4%
Telecommunications, Computer, and Information Services	\$288.1	\$480.9	\$192.8	66.9%
Agricultural Products	\$122.3	\$99.7	-\$22.6	-18.5%
Transport	\$5.9	\$70.8	\$64.9	1,100.0%



China

At \$4.7 billion in exports, China was Virginia’s fourth-largest export market in 2022. Goods exports accounted for the largest share of that total at \$2.8 billion, with services exports at \$1.9 billion. Between 2012 and 2022, the largest increase in Virginia exports to China was in services which increased by \$0.9 billion or 88.5 percent. Goods exports increased by \$0.8 billion or 42.2 percent over the period.

At a sector level, in 2022 exports from Virginia to China were led by:

- Agricultural Products at \$1.0 billion, where the lead driver industry was Oilseeds and Grains.
- Charges for the Use of Intellectual Property at \$0.6 billion, where the lead driver industries were
 - Research and Development Licensing and
 - Software Licensing.
- Food and Kindred Products at \$0.4 billion, where the lead driver industry was Meat Products and Meat Packaging Products.
- Telecommunications, Computer, and Information Services at \$0.4 billion, where the lead driver industry was Computer Services.
- Paper at \$0.4 billion, where the lead driver industries were
 - Converted Paper Products and
 - Pulp, Paper, and Paperboard Mill Products.

Table 27: Virginia's Exports to China 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$2,987.9	\$4,705.3	\$1,717.4	57.5%
Goods	\$2,003.6	\$2,849.7	\$846.1	42.2%
Services	\$984.4	\$1,855.6	\$871.2	88.5%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Agricultural Products	\$413.2	\$953.4	\$540.2	130.7%
Charges for the Use of Intellectual Property	\$285.5	\$625.6	\$340.1	119.1%
Food And Kindred Products	\$106.0	\$434.3	\$328.3	309.7%
Telecommunications, Computer, And Information Services	\$81.5	\$367.4	\$285.9	350.8%
Paper	\$231.1	\$351.4	\$120.3	52.1%

The Netherlands

At \$4.3 billion in exports, The Netherlands was Virginia's fifth-largest export market in 2022. Services exports accounted for the largest share of that total at \$2.9 billion, with goods exports at \$1.5 billion. Between 2012 and 2022, the largest increase in Virginia exports to The Netherlands was in services which increased by \$2.0 billion or 229.9 percent. Goods exports increased by \$1.1 billion or 335.4 percent over the period.

At a sector level, in 2022 exports from Virginia to The Netherlands were led by:

- Charges for the Use of Intellectual Property at \$1.5 billion, where the lead driver industries were
 - Research and Development Licensing and
 - Software Licensing.
- Other Business Services at \$0.9 billion, where the lead driver industries were
 - Professional and Management Consulting Services,
 - Technical, Trade-Related, and Other Business Services and
 - Research and Development Services.
- Minerals and Ores at \$0.9 billion, where the lead driver industry was Coal.
- Telecommunications, Computer, And Information Services at \$0.3 billion, where the lead driver industries were
 - Computer Services and
 - Telecommunications Services.
- Chemicals at \$0.2 billion, where the lead driver industry was Pharmaceuticals and Medicines.

Table 28: Virginia's Exports to The Netherlands 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$1,199.8	\$4,312.0	\$3,112.2	259.4%
Goods	\$335.5	\$1,460.7	\$1,125.2	335.4%
Services	\$864.3	\$2,851.3	\$1,987.0	229.9%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Charges for the Use of Intellectual Property	\$401.1	\$1,479.8	\$1,078.7	268.9%
Other Business Services	\$298.2	\$945.0	\$646.8	216.9%
Minerals and Ores	\$48.0	\$885.9	\$837.9	1,745.6%
Telecommunications, Computer, And Information Services	\$83.7	\$312.0	\$228.3	272.8%
Chemicals	\$88.3	\$195.6	\$107.3	121.5%

The United Kingdom

At \$4.0 billion in exports, The United Kingdom was Virginia's sixth-largest export market in 2022. Services exports accounted for the largest share of that total at \$3.3 billion, with goods exports at \$0.7 billion. Between 2012 and 2022, the largest increase in Virginia exports to The United Kingdom was in services which increased by \$0.8 billion or 33.3 percent. Goods exports decreased by \$0.4 billion or minus 36.5 percent over the period.

At a sector level, in 2022 exports from Virginia to The United Kingdom were led by:

- Other Business Services at \$1.5 billion, where the lead driver industries were
 - Professional and Management Consulting Services and
 - Technical, Trade-Related, and Other Business Services.
- Telecommunications, Computer, and Information Services at \$0.9 billion, where the lead driver industry was Computer Services.
- Financial Services at \$0.3 billion, where the lead driver industry was Credit Card and Other Credit-Related Services.
- Charges for the Use of Intellectual Property at \$0.3 billion, where the lead driver industry was Research and Development Licensing.
- Wood Products at \$0.2 billion, where the lead driver industry was Other Wood Products.

Table 29: Virginia's Exports to The United Kingdom 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$3,544.5	\$3,972.2	\$427.7	12.1%
Goods	\$1,076.7	\$683.5	-\$393.2	-36.5%
Services	\$2,467.7	\$3,288.7	\$821.0	33.3%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Other Business Services	\$910.0	\$1,479.6	\$569.6	62.6%
Telecommunications, Computer, And Information Services	\$655.6	\$881.4	\$225.8	34.4%
Financial Services	\$300.0	\$286.9	-\$13.1	-4.4%
Charges for the Use of Intellectual Property	\$360.6	\$271.1	-\$89.5	-24.8%
Wood Products	\$14.8	\$157.4	\$142.6	963.5%

Germany

At \$3.2 billion in exports, Germany was Virginia's seventh-largest export market in 2022. Services exports accounted for the largest share of that total at \$2.2 billion, with goods exports at \$1.0 billion. Between 2012 and 2022, the largest increase in Virginia exports to Germany was in services which increased by \$1.1 billion or 95.1 percent. Goods exports increased by \$0.07 billion or 7.8 percent over the period.

At a sector level, in 2022 exports from Virginia to Germany were led by:

- Other Business Services at \$1.2 billion, where the lead driver industries were
 - Professional and Management Consulting Services and
 - Technical, Trade-Related, and Other Business Services.
- Telecommunications, Computer, And Information Services at \$0.4 billion where the lead driver industry was Computer Services.
- Charges for the Use of Intellectual Property at \$0.3 billion, where the lead driver industries were
 - Research and Development Licensing and
 - Software Licensing.
- Minerals and Ores at \$0.3 billion, where the lead driver industry was Coal.
- Machinery, Except Electrical at \$0.1 billion, where the lead driver industries were
 - Engines, Turbines, and Power Transmission Equipment and
 - Other General-Purpose Machinery.

Table 30: Virginia's Exports to Germany 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$2,060.4	\$3,214.7	\$1,154.3	56.0%
Goods	\$922.2	\$994.0	\$71.8	7.8%
Services	\$1,138.2	\$2,220.6	\$1,082.4	95.1%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Other Business Services	\$386.3	\$1,193.4	\$807.1	208.9%
Telecommunications, Computer, And Information Services	\$162.2	\$436.0	\$273.8	168.8%
Charges for the Use of Intellectual Property	\$435.4	\$294.5	-\$140.9	-32.4%
Minerals And Ores	\$2.9	\$267.5	\$264.6	9,124.1%
Machinery, Except Electrical	\$155.6	\$140.9	-\$14.7	-9.4%

India

At \$3.1 billion in exports, India was Virginia’s eighth-largest export market in 2022. Goods exports accounted for the largest share of that total at \$2.3 billion, with services exports at \$0.8 billion. Between 2012 and 2022, the largest increase in Virginia exports to India was in goods which increased by \$2.0 billion or 774.1 percent. Services exports increased by \$0.4 billion or 96.4 percent over the period.

At a sector level, in 2022 exports from Virginia to India were led by:

- Minerals and Ores at \$1.8 billion, where the lead driver industry was Coal.
- Travel for All Purposes Including Education at \$0.2 billion, where the lead driver industry was Personal Travel.
- Waste And Scrap at \$0.2 billion.
- Other Business Services at \$0.2 billion, where the lead driver industry was Professional and Management Consulting Services.
- Telecommunications, Computer, And Information Services at \$0.1 billion where the lead driver industry was Computer Services.

Table 31: Virginia's Exports to India 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$684.6	\$3,137.5	\$2,452.9	358.3%
Goods	\$264.6	\$2,312.8	\$2,048.2	774.1%
Services	\$420.0	\$824.7	\$404.7	96.4%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Minerals And Ores	\$29.0	\$1,798.9	\$1,769.9	6,103.1%
Travel for All Purposes Including Education	\$102.0	\$224.4	\$122.4	120.0%
Waste And Scrap	\$35.6	\$188.4	\$152.8	429.2%
Other Business Services	\$73.1	\$182.7	\$109.6	149.9%
Telecommunications, Computer, And Information Services	\$132.1	\$146.9	\$14.8	11.2%



Mexico

At \$2.6 billion in exports, Mexico was Virginia’s ninth-largest export market in 2022. Services exports accounted for the largest share of that total at \$1.5 billion, with goods exports at \$1.1 billion. Between 2012 and 2022, the largest increase in Virginia exports to Mexico was in services where exports increased by \$0.6 billion or 63.0 percent. Goods exports increased by \$0.1 billion or 7.1 percent over the period.

At a sector level, in 2022 exports from Virginia to Mexico were led by:

- Other Business Services at \$0.5 billion, where the lead driver industries were
 - Professional and Management Consulting Services and
 - Technical, Trade-Related, and Other Business Services.
- Telecommunications, Computer, And Information Services at \$0.3 billion where the lead driver industry was Computer Services.
- Travel for All Purposes Including Education at \$0.3 billion, where the lead driver industry was Business Travel.
- Charges for the Use of Intellectual Property at \$0.2 billion, where the lead driver industry was Research and Development Licensing.
- Chemicals at \$0.2 billion, where the lead driver industries were
 - Resins, Fibers, and Filaments,
 - Basic Chemicals, and
 - Soaps, Cleaning Compounds, and Toilet Preparations.

Table 32: Virginia's Exports to Mexico 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$1,983.9	\$2,643.0	\$659.1	33.2%
Goods	\$1,055.4	\$1,129.9	\$74.5	7.1%
Services	\$928.5	\$1,513.2	\$584.7	63.0%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Other Business Services	\$244.2	\$515.7	\$271.5	111.2%
Telecommunications, Computer, And Information Services	\$92.0	\$321.8	\$229.8	249.8%
Travel (For All Purposes Including Education)	\$294.0	\$270.1	-\$23.9	-8.1%
Charges for the Use of Intellectual Property	\$135.4	\$199.8	\$64.4	47.6%
Chemicals	\$276.8	\$171.3	-\$105.5	-38.1%

Japan

At \$2.6 billion in exports, Japan was Virginia's tenth-largest export market in 2022. Services exports accounted for the largest share of that total at \$1.8 billion, with goods exports at \$0.8 billion. Between 2012 and 2022, the largest increase in Virginia exports to Japan was in services which increased by \$0.4 billion or 24.8 percent. Goods exports increased by \$0.3 billion or 58.3 percent over the period.

At a sector level, in 2022 exports from Virginia to Japan were led by:

- Other Business Services at \$0.6 billion, where the lead driver industries were
 - Professional and Management Consulting Services,
 - Research and Development Services, and
 - Technical, Trade-Related, and Other Business Services.
- Telecommunications, Computer, And Information Services at \$0.6 billion where the lead driver industry was Computer Services.
- Charges for the Use of Intellectual Property at \$0.3 billion, where the lead driver industry was Research and Development Licensing.
- Chemicals at \$0.2 billion, where the lead driver industries were
 - Resins, Fibers, and Filaments and
 - Pharmaceuticals and Medicines.
- Minerals And Ores at \$0.1 billion, where the lead driver industry was Coal.

Table 33: Virginia's Exports to Japan 2012-2022 (millions of 2022 dollars)

Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Total	\$1,935.4	\$2,575.3	\$639.9	33.1%
Goods	\$475.9	\$753.3	\$277.4	58.3%
Services	\$1,459.4	\$1,821.9	\$362.5	24.8%
Top 5 Virginia Exports	2012	2022	\$ Change	2012-2022 Change
Other Business Services	\$457.6	\$626.0	\$168.4	36.8%
Telecommunications, Computer, And Information Services	\$202.8	\$602.1	\$399.3	196.9%
Charges for the Use of Intellectual Property	\$495.6	\$317.3	-\$178.3	-36.0%
Chemicals	\$152.0	\$191.1	\$39.1	25.7%
Minerals And Ores	\$1.6	\$141.1	\$139.5	8,718.8%

Key Takeaways – Top Export Markets

- In 2022, Canada was Virginia’s top export market for total exports (*i.e.*, goods and services combined) that year at \$6.6 billion, followed by Ireland at \$6.2 billion, and Switzerland at \$5.3 billion.
- Between 2012 and 2022, Virginia’s exports to Ireland grew by the largest dollar value over the period at \$4.4 billion, followed by Switzerland at \$3.4 billion, and the Netherlands at \$3.1 billion.

Economic and Fiscal Impact

The analysis presented in this section quantifies the economic and fiscal impact that Virginia's exports had on the state and the GO Virginia Regions in 2022.

METHOD

To empirically evaluate the economic and fiscal impact attributable to Virginia's exports in 2022, we employ a regional economic impact model called IMPLAN.³⁶ The IMPLAN model is one of the most commonly used economic impact simulation models in the U.S. and is frequently employed by universities, state agencies, and research institutes. Like all economic impact models, the IMPLAN model uses economic multipliers to quantify economic impact.

Economic multipliers measure the ripple effects that an expenditure generates as it makes its way through the economy. For example, export producers spend money to pay employees and purchase goods and services which provide income to the employees and the vendor businesses. Those employees and vendors then have money to spend on goods and services, which again provides income for other businesses – and so on. Through this process, one dollar in expenditures generates multiple dollars of income. The mathematical relationship between the initial expenditure and the total income generated is the economic multiplier.

One of the primary advantages of the IMPLAN model is that it uses regional and national production and trade flow data to construct region-specific and industry-specific economic multipliers, which are then further adjusted to reflect anticipated actual spending patterns within the specific geographic study area that is being evaluated. As a result, the economic impact estimates produced by IMPLAN are not generic. They reflect as precisely as possible the economic realities of the specific industry, and the specific study area, being evaluated.

In the analysis that follows, these impact estimates are divided into three categories. The first-round direct impact measures the direct economic contribution of the entity being evaluated (e.g., own employment, wages paid, goods and services purchased by the export producer). The second-round indirect and induced impact measures the economic ripple effects of this direct impact in terms of business-to-business, and household (employee)-to-business, transactions. The total impact is simply the sum of the preceding two. These categories of impact are then further defined in terms of employment (the jobs that are created), labor income (the wages and benefits associated with those jobs), and economic output (the total amount of economic activity that is created in the economy).

³⁶ IMPLAN is produced by IMPLAN Group, LLC.

STATEWIDE IMPACT

In this portion of the section, we assess the statewide economic and fiscal impact of Virginia’s 2022 exports.

Total

As shown in Table 34, Virginia’s \$69.3 billion in total exports in 2022 directly supported approximately: 1) 208,270 jobs, 2) \$22.7 billion in wages and benefits, and \$67.1 billion in economic output (in 2022 dollars).³⁷ Taking into account the economic ripple effects that direct economic activity generated, the estimated total impact on Virginia was approximately: 1) 316,039 jobs, 2) \$29.4 billion in wages and benefits, 3) \$87.7 billion in economic output, and 4) \$3.4 billion in total state and local tax revenue (*i.e.*, \$1.4 billion in local tax revenue, and \$2.0 billion in state tax revenue) in 2022 dollars. The estimated average salary for direct export jobs in 2022 was \$90,200.³⁸

Table 34: Statewide Economic and Fiscal Impact of Virginia’s Total Exports in 2022 (millions of 2022 dollars)

Economic Impact	Employment	Labor Income	Output
1st Round Direct Economic Activity	208,270	\$22,738.2	\$67,069.3
2nd Round Indirect and Induced Economic Activity	107,769	\$6,691.8	\$20,640.0
Total Economic Activity	316,039	\$29,430.0	\$87,709.3
Fiscal Impact	Local	State	Total
Tax Revenue	\$1,456.5	\$1,959.0	\$3,415.5

³⁷ We do not estimate the impact of exported government services.

³⁸ Excludes benefits that are included as part of total labor income.

Goods

As shown in Table 35, Virginia’s \$24.9 billion in goods exports in 2022 directly supported approximately: 1) 55,441 jobs, 2) \$4.6 billion in wages and benefits, and 3) \$24.8 billion in economic output (in 2022 dollars). Taking into account the economic ripple effects that direct economic activity generated, the estimated total impact on Virginia was approximately: 1) 93,167 jobs, 2) \$6.9 billion in wages and benefits, 3) \$32.3 billion in economic output, and 4) \$1.2 billion in total state and local tax revenue (*i.e.*, \$0.5 billion in local tax revenue and \$0.7 billion in state tax revenue) in 2022 dollars. The estimated average salary for direct goods-producing export jobs in 2022 was \$68,400.³⁹

Table 35: Statewide Economic and Fiscal Impact of Virginia’s Goods Exports in 2022 (millions of 2022 dollars)

Economic Impact	Employment	Labor Income	Output
1st Round Direct Economic Activity	55,441	\$4,587.4	\$24,810.9
2nd Round Indirect and Induced Economic Activity	37,726	\$2,322.2	\$7,478.5
Total Economic Activity	93,167	\$6,909.6	\$32,289.4
Fiscal Impact	Local	State	Total
Tax Revenue	\$503.0	\$726.7	\$1,229.7

³⁹ Excludes benefits that are included as part of total labor income.

Services

As shown in Table 36, Virginia’s \$44.4 billion in services exports in 2022 directly supported approximately: 1) 152,829 jobs, 2) \$18.2 billion in wages and benefits, and 3) \$42.3 billion in economic output (in 2022 dollars).⁴⁰ Taking into account the economic ripple effects that direct economic activity generated, the estimated total impact on Virginia was approximately: 1) 222,872 jobs, 2) \$22.5 billion in wages and benefits, 3) \$55.4 billion in economic output, and 4) \$2.2 billion in total state and local tax revenue (*i.e.*, \$1.0 billion in local tax revenue and \$1.2 billion in state tax revenue) in 2022 dollars. The estimated average salary (excluding benefits included in Labor Income) for direct services-providing export jobs in 2022 was \$98,200.⁴¹

Table 36: Statewide Economic and Fiscal Impact of Virginia’s Services Exports in 2022 (millions of 2022 dollars)

Economic Impact	Employment	Labor Income	Output
1st Round Direct Economic Activity	152,829	\$18,150.8	\$42,258.4
2nd Round Indirect and Induced Economic Activity	70,043	\$4,369.6	\$13,161.5
Total Economic Activity	222,872	\$22,520.4	\$55,419.9
Fiscal Impact	Local	State	Total
Tax Revenue	\$953.4	\$1,232.4	\$2,185.8

⁴⁰ We do not estimate the impact of exported government services.

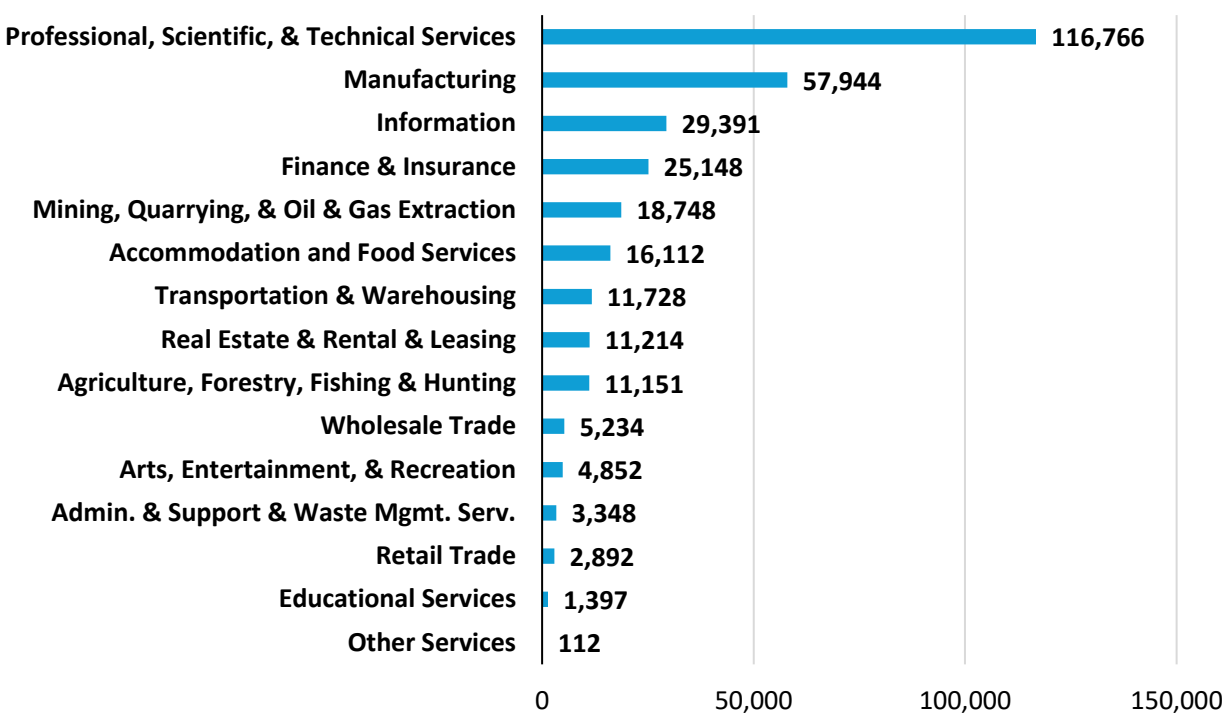
⁴¹ Excludes benefits that are included as part of total labor income.



BY SECTOR

Figure 13 drills down into the top-line statewide impact numbers to provide data on the total statewide employment impact from exports in 2022 by major industry sector.⁴² As these data indicate, Professional, Scientific, and Technical Services had the largest total statewide employment impact of any major industry export sector that year at 116,766 jobs, while Manufacturing had the second largest at 57,944 jobs. These findings are consistent with data provided earlier (see Figure 5) which showed that Professional and Business Services (the broader category that includes Professional, Scientific, and Technical Services) was Virginia’s largest export sector in 2022, while Manufacturing was the state’s second-largest export sector. Information had the third-largest employment impact of any major industry export sector that year at 29,391 jobs.

Figure 13: Total Statewide Employment Impact by Sector in 2022



⁴² A “major industry sector” is the second highest level of aggregation in the coding system that the U.S. Bureau of Labor Statistics uses to classify industries.



Figure 14 provides a different perspective on these data by detailing the statewide employment multiplier for each major industry export sector in 2022. Recall that an economic multiplier measures the ripple effects that an economic event generates as it makes its way through the economy. More specifically, however, a multiplier reveals the depth and breadth of an industry’s supply network within the study area, which in this case is the state of Virginia. The more developed the supply network, the larger the ripple effect, and the larger the multiplier.

As shown in Figure 14, in 2022 Wholesale Trade exhibited the largest employment multiplier of any major industry export sector at 2.49. What that multiplier means is that in addition to every job that was supported by export activity in Wholesale Trade, another 1.49 jobs were supported in Virginia’s economy among the suppliers to the Wholesale Trade industry or through the household purchases of Wholesale Trade employees. Continuing down the list, at 1.81, Manufacturing exhibited the second-largest employment multiplier of any major industry export sector in 2022, and Information exhibited the third largest at 1.80.

Figure 14: Statewide Employment Multiplier by Sector in 2022

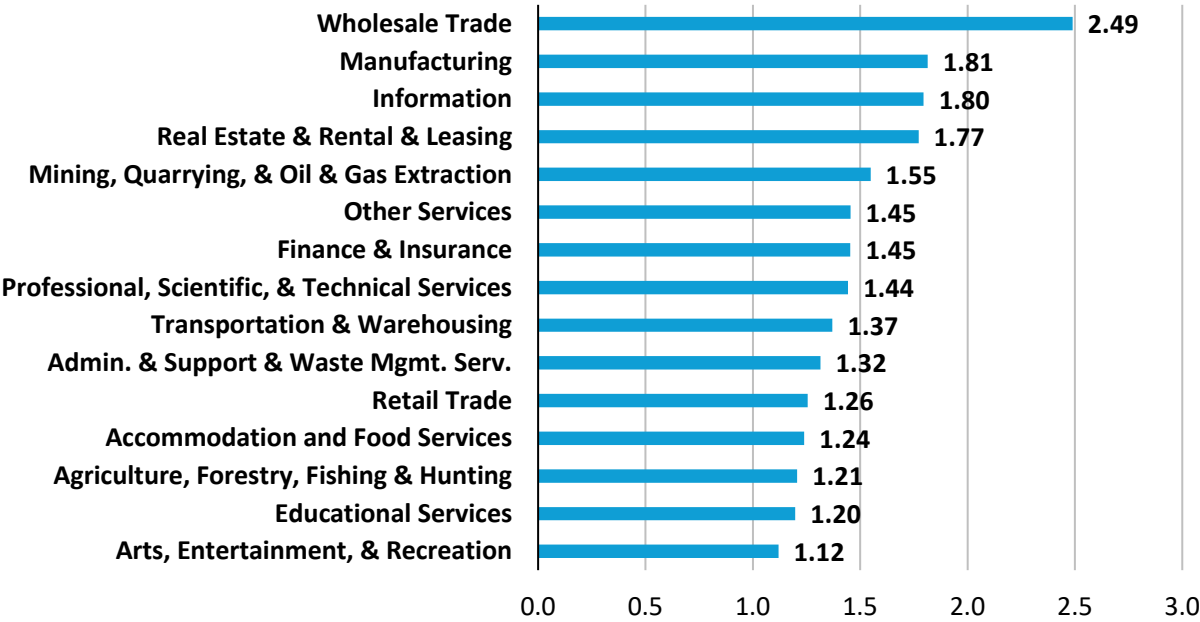
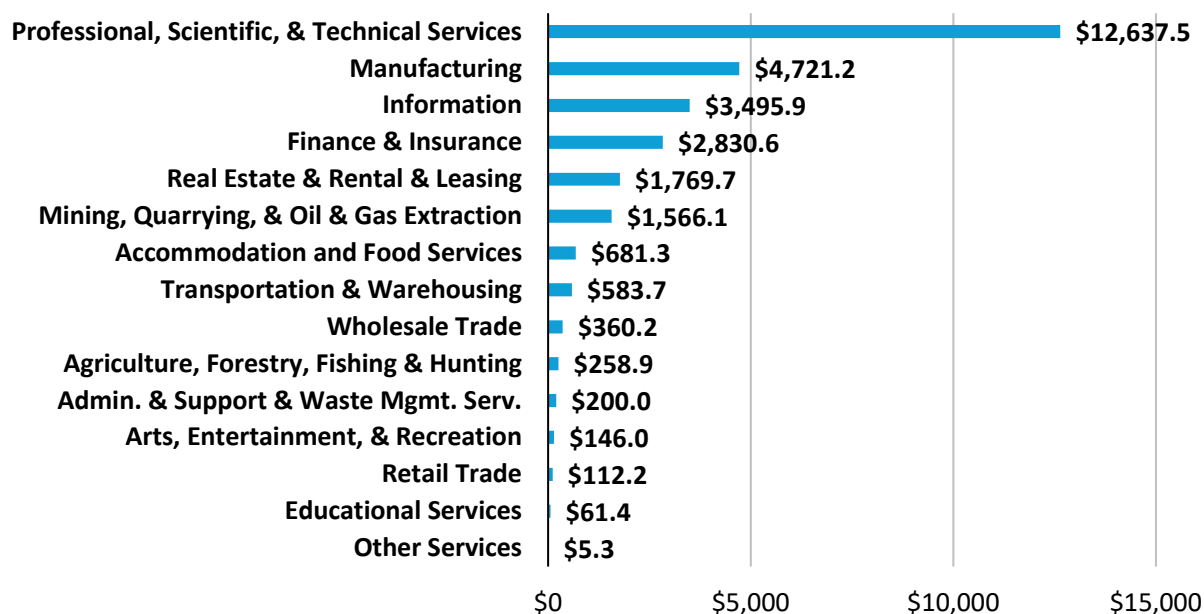




Figure 15 provides data on the total statewide labor-income impact from exports in 2022 by major industry sector. Not surprisingly given the employment impact rankings in Figure 13, Professional, Scientific, and Technical Services exhibited the largest total statewide labor-income impact of any major industry export sector that year at \$12.6 billion, while Manufacturing exhibited the second largest at \$4.7 billion, and Information exhibited the third largest at \$3.5 billion.

Figure 15: Total Statewide Labor-Income Impact by Sector in 2022 (millions of 2022 dollars)





Similar to Figure 14, Figure 16 provides data on the statewide labor-income multiplier for each major industry export sector in 2022. As these data show, Wholesale Trade exhibited the largest labor-income multiplier of any major industry export sector that year at 1.99, followed by Other Services at 1.61, and Manufacturing at 1.60. What these multipliers indicate is that for every \$1.00 in wages and benefits supported by export activity in these industries, another \$0.99, \$0.61, or \$0.60 in wages and benefits were supported elsewhere in Virginia’s economy because of the secondary ripple effect on suppliers of those industries and their employees.

Figure 16: Statewide Labor-Income Multiplier by Sector in 2022

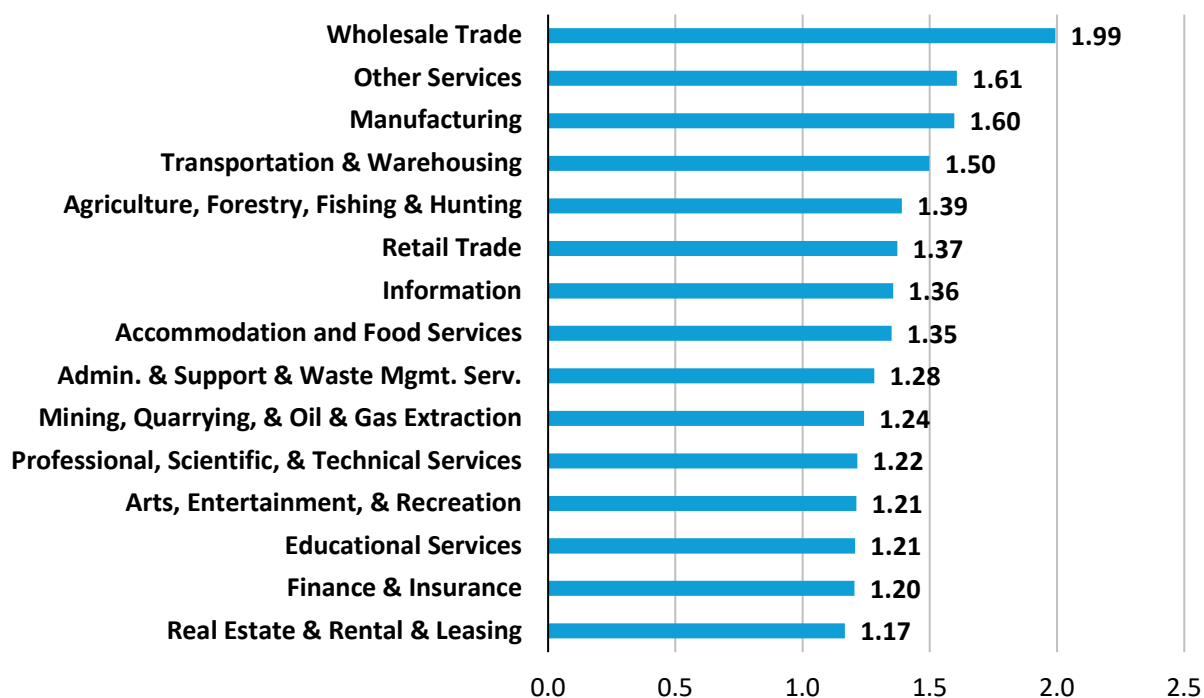
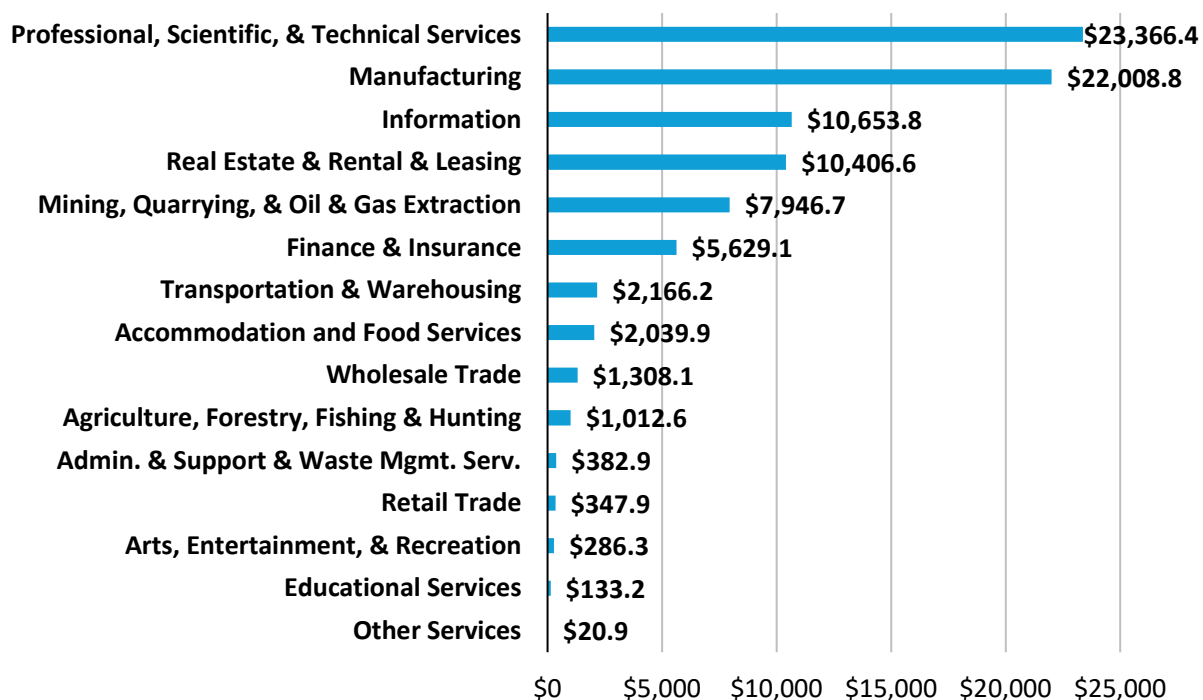




Figure 17 details the total statewide output impact from exports by major industry sector in 2022. Here again, Professional, Scientific, and Technical Services exhibited the largest total statewide output impact of any major industry export sector that year at \$23.4 billion, while Manufacturing exhibited the second largest at \$22.0 billion, and Information exhibited the third largest at \$10.7 billion.

Figure 17: Total Output Impact by Sector in 2022 (millions of 2022 dollars)



As in previous examples, Figure 18 provides data on the statewide output multiplier for each major industry export sector in 2022. As these data indicate, Wholesale Trade exhibited the largest output multiplier of any major industry export sector that year at 1.70, followed by Administrative and Support and Waste Management and Remediation Services at 1.56, and Arts, Entertainment, and Recreation at 1.50. What these multipliers indicate is that for every \$1.00 in economic output supported by export activity in these industries, another \$0.70, \$0.56, or \$0.50 in economic output was supported elsewhere in Virginia’s economy because of the secondary ripple effect on suppliers of those industries and their employees.

Figure 18: Statewide Output Multiplier by Sector in 2022





BY GO VIRGINIA REGION

Figure 19 drills down into the top-line statewide impact numbers to provide data on the total employment impact from exports by GO Virginia Region in 2022. Consistent with the data on exports by GO Virginia Region shown earlier (see Figure 9), GO Virginia Region 7 had the largest total employment impact of any region that year at 142,313 jobs, while Region 4 had the second largest at 44,038 jobs, and Region 5 had the third largest at 36,194 jobs.

Figure 19: Total Employment Impact by GO Virginia Region in 2022

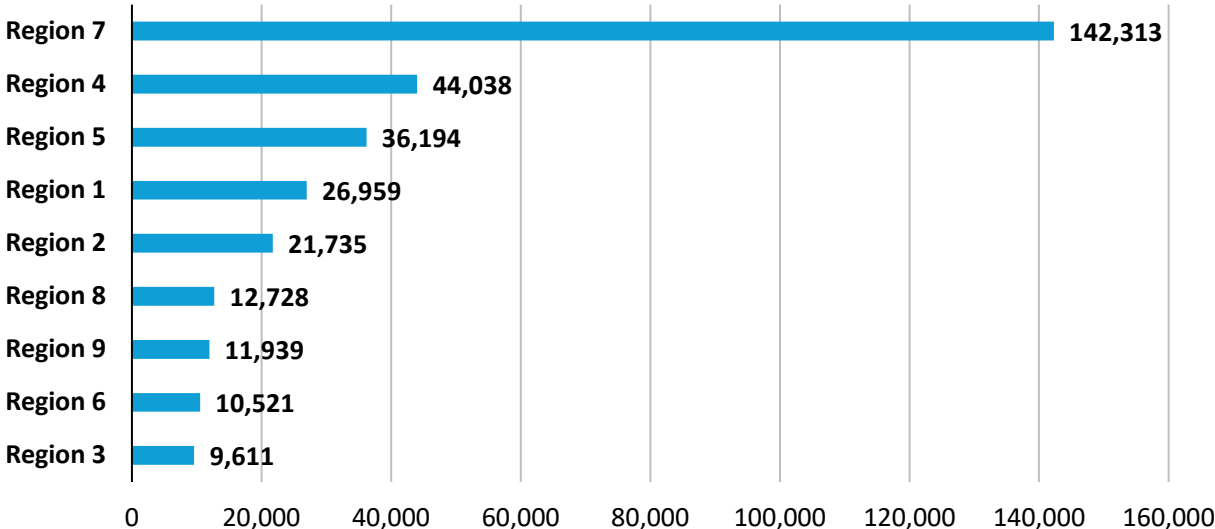




Figure 20 provides data on the employment multiplier for each GO Virginia Region in 2022. At a regional level, however, it is important to realize that these multipliers must be interpreted differently than at a sector level. At the sector level, statewide multipliers provide an indication of how well-developed an industry’s supply network is within the state. At the regional level, multipliers are more of a complex function of the specific industry mix in each region and how well-developed is each industry’s supply network within the region. As the data in Figure 20 indicate, in 2022, GO Virginia Region 2 exhibited the largest employment multiplier of any region at 1.69, followed by Region 5 at 1.61, and Region 4 at 1.60.

Figure 20: Employment Multiplier by GO Virginia Region in 2022

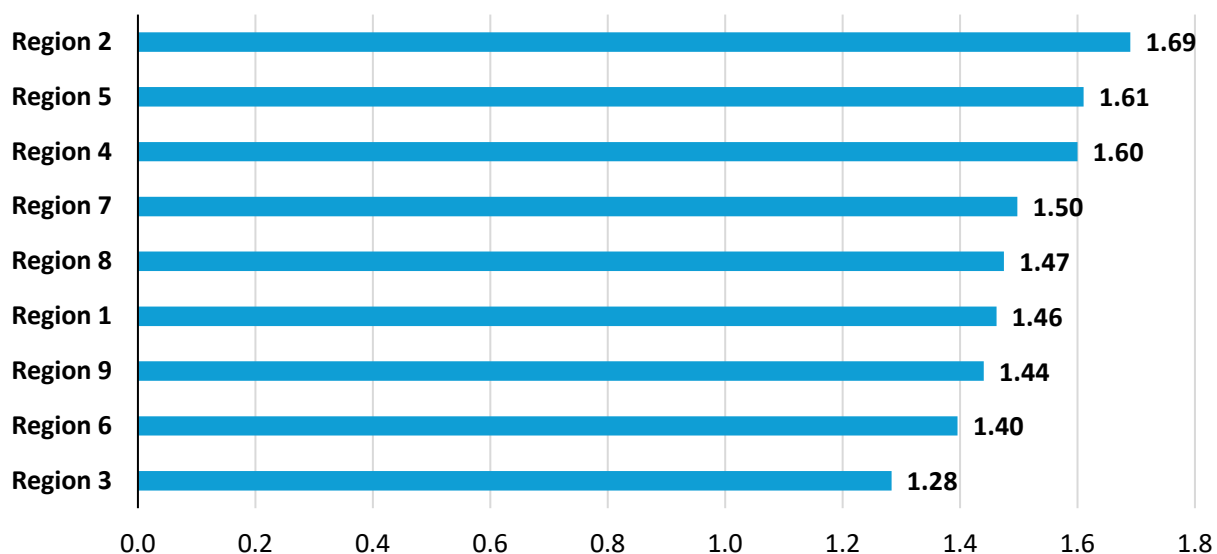
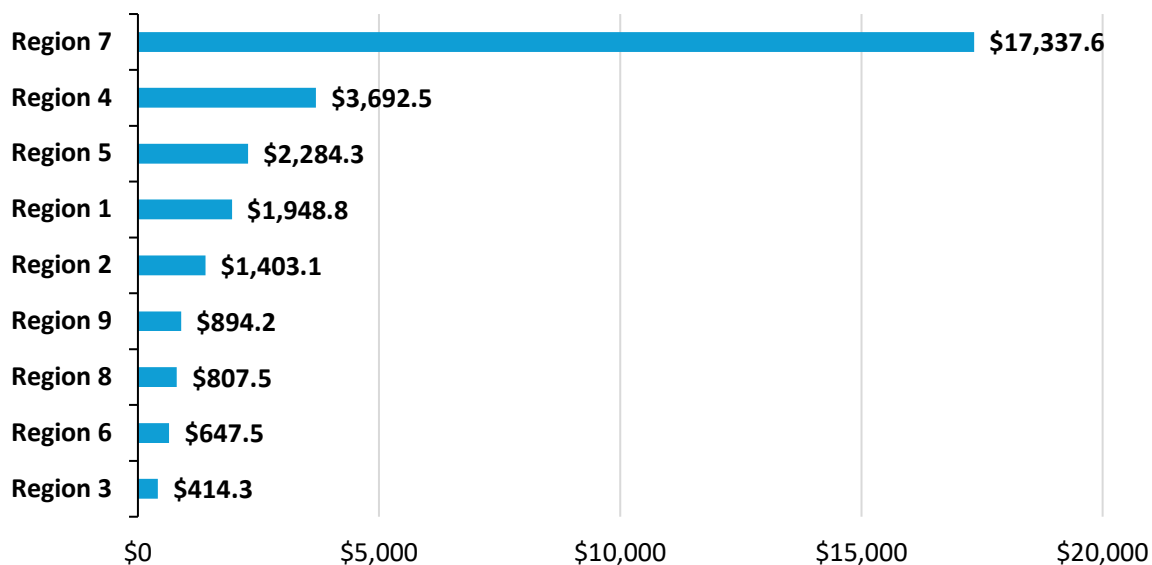




Figure 21 provides data on the total labor-income impact from exports by GO Virginia Sector in 2022. Not surprisingly given the employment impact rankings in Figure 19, GO Virginia Region 7 had the largest total labor-income impact of any region that year at \$17.3 billion, while Region 4 had the second largest at \$3.7 billion, and Region 5 had the third largest at \$2.3 billion.

Figure 21: Total Labor Impact by GO Virginia Region in 2022 (millions of 2022 dollars)



As the data in Figure 22 show, in 2022, GO Virginia Region 2 exhibited the largest labor-income multiplier of any region at 1.52, followed by Regions 4 and 5 at 1.42.

Figure 22: Labor-Income Multiplier by GO Virginia Region in 2022

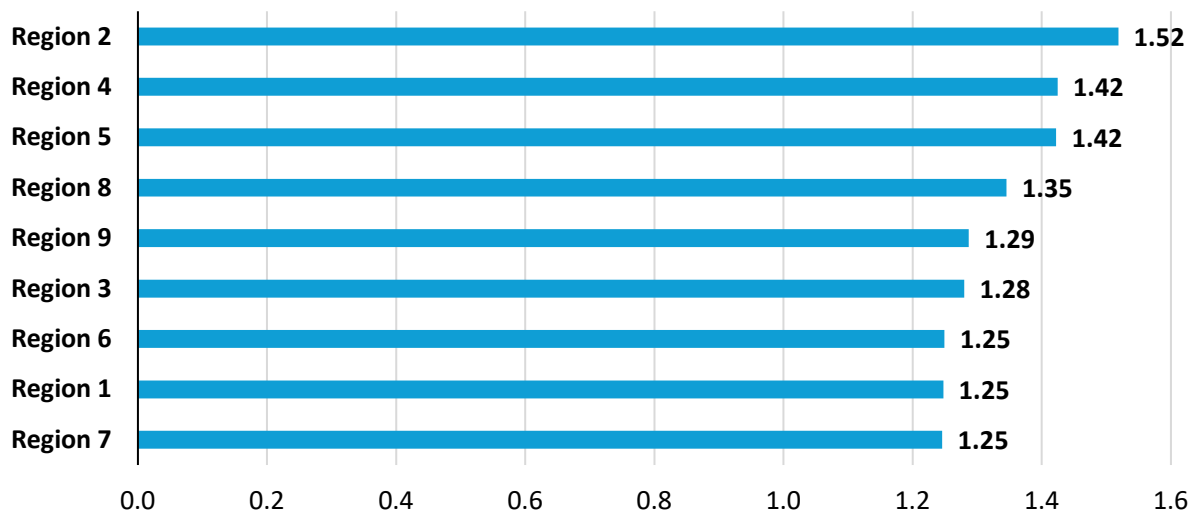
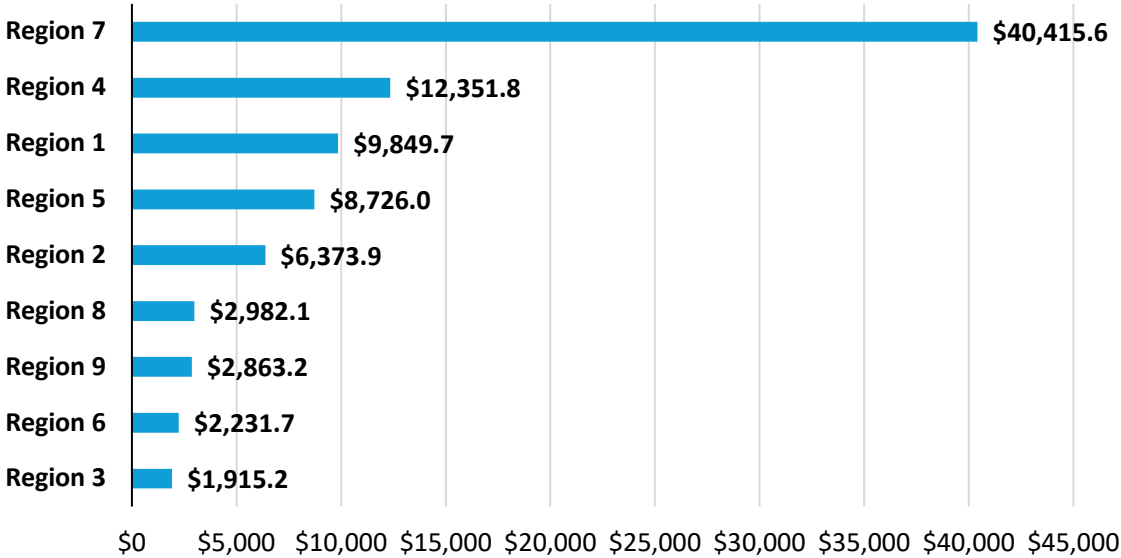




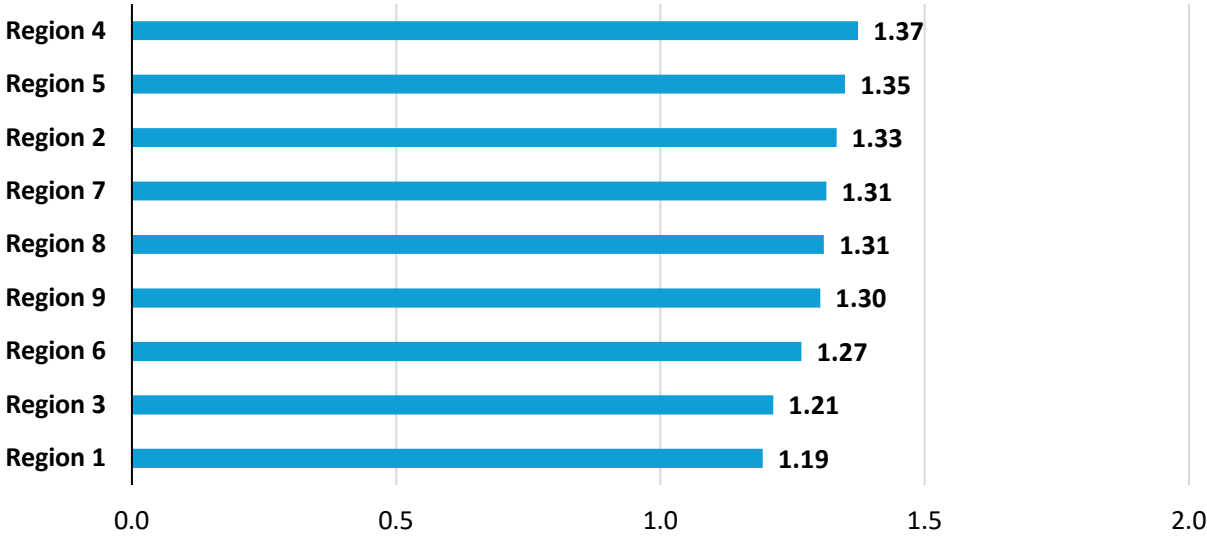
Figure 23 details the total output impact from exports by GO Virginia Region in 2022. As these data show, Region 7 had the largest total output impact of any region that year at \$40.4 billion, followed by Region 4 at \$12.4 billion, and Region 1 at \$9.8 billion.

Figure 23: Total Output Impact by GO Virginia Region in 2022 (millions of 2022 dollars)



Lastly, as the data in Figure 24 show, GO Virginia Region 4 exhibited the largest output multiplier of any region in 2022 at 1.37, followed by Region 5 at 1.35, and Region 2 at 1.33.

Figure 24: Output Multiplier by GO Virginia Region in 2022



Key Takeaways – Economic and Fiscal Impact

In 2022:

- The statewide economic and fiscal impact of Virginia’s \$69.3 billion in total exports is estimated to have directly and indirectly supported approximately:
 - 316,039 jobs.
 - \$29.4 billion in wages and benefits.
 - \$87.7 billion in economic output.
 - \$3.4 billion in tax revenue (consisting of \$2.0 billion in state tax revenue and \$1.5 billion in local tax revenue).
- The statewide economic and fiscal impact of Virginia’s \$24.9 billion in goods exports is estimated to have directly and indirectly supported approximately:
 - 93,167 jobs.
 - \$6.9 billion in wages and benefits.
 - \$32.3 billion in economic output.
 - \$1.2 billion in tax revenue (consisting of \$0.7 billion in state tax revenue and \$0.5 billion in local tax revenue).
- The statewide economic and fiscal impact of Virginia’s \$44.4 billion in services exports is estimated to have directly and indirectly supported approximately:
 - 222,872 jobs.
 - \$22.5 billion in wages and benefits.
 - \$55.4 billion in economic output.
 - \$2.2 billion in tax revenue (consisting of \$1.2 billion in state tax revenue and \$1.0 billion in local tax revenue).
- At the sector level:
 - Professional, Scientific, and Technical Services had the largest total statewide employment impact of any major industry export sector at 116,767 jobs, followed by Manufacturing at 57,944 jobs, and Information at 29,391 jobs.
 - The sectors with the largest statewide employment multiplier were Wholesale Trade at 2.49, Manufacturing at 1.81, and Information at 1.80.
 - Professional, Scientific, and Technical Services had the largest total statewide labor-income impact of any major industry export sector at \$12.6 billion, followed by Manufacturing at \$4.7 billion, and Information at \$3.5 billion.
 - The sectors with the largest statewide labor-income multiplier were Wholesale Trade at 1.99, Other Services at 1.61, and Manufacturing at 1.60.

- Professional, Scientific, and Technical Services had the largest total statewide output impact of any major industry export sector in 2022 at \$23.4 billion, followed by Manufacturing at \$22.0 billion, and Information at \$10.7 billion.
- The sectors with the largest statewide economic output multiplier were Wholesale Trade at 1.70, Administrative and Support and Waste Management Services at 1.56, and Arts, Entertainment, and Recreation at 1.50
- At a regional level:
 - GO Virginia Region 7 (Northern Virginia) had the largest total employment impact of any region at 142,313 jobs, followed by Region 4 (Greater Richmond area) at 44,038 jobs, and Region 5 (Hampton Roads) at 36,194 jobs.
 - GO Virginia Region 7 (Northern Virginia) had the largest total labor-income impact of any region at \$17.3 billion, followed by Region 4 (Greater Richmond area) at \$3.7 billion, and Region 5 (Hampton Roads) at \$2.3 billion.
 - GO Virginia Region 7 (Northern Virginia) had the largest total output impact of any region in 2022 at \$40.4 billion, followed by Region 4 (Greater Richmond area) at \$12.4 billion, and Region 1 (Southwest Virginia) at \$9.8 billion.

Addendum on Data and Methods

The export data used in this report came from WISERTrade, which uses the export data published by the U.S. government as its primary data source. The Virginia Economic Development Partnership (VEDP) subscribes to WISERTrade and kindly provided Mangum Economic with access to its subscription.

Advantages of the WISERTrade data over the federal data include modifications to the state data to account for state-of-origin versus state-of-export. Coal mined in West Virginia but exported through Virginia's ports often incorrectly are attributed to Virginia. WISERTrade also produces county-level exports using NAICS codes, rather than the traditional Harmonized Codes used in international trade. NAICS codes are the system primarily used in the analysis of U.S. industry, allowing VEDP International Trade to produce data in the same system as the rest of the organization.

Mangum Economics chose to adjust WISERTrade's county-level NAICS data. As directly produced from WISERTrade, the top five exporting localities included "Re-Exports, No County Detail" and "Unknown County". Looking at the industry-level detail for those two categories, most of the discrepancies came from the four-digit NAICS code 3221 - Pulp, paper, and paperboard mills. Using Mangum Economics' familiarity with Virginia industry and county-level WISERTrade data for NAICS 3221, two adjustments were made to the industry's data. First, half of the unaccounted amount was distributed across all localities with exports of NAICS 3221 in proportion to their existing share of the industry. For example, a county with 20 percent of the industry's exports would receive 20 percent of the first half of the unaccounted amount. The second adjustment allocated the other half of the unaccounted amount to six localities that appeared underrepresented in exports compared to their total size in proportion to their

size within the group of the six of them. The other industries besides NAICS 3221 were adjusted only by distributing the industry amount proportionally for that industry across all localities with exports of that industry.

About Mangum Economics, LLC

Mangum Economics, based in Glen Allen, Virginia, was founded in 2003. Since then, we have become known as a leader in industry analysis, economic impact assessment, policy and program evaluation, and economic and workforce strategy development. The Mangum Team specializes in producing objective and actionable quantitative economic research that our clients use for strategic decision making in a variety of industries and environments. We know that our clients are unique and that one size does not fit all. As a result, we have a well-earned reputation for tailoring our analyses to meet the specific needs of specific clients, with a specific audience.

Most of our research falls into four general categories:

- **Economic Development and Special Projects:** The Mangum Team has performed hundreds of analyses of proposed economic development projects. One recent example was an analysis of the proposed \$2.3 billion Green City “net-zero eco district.” The Mangum Team has also authored multiple economic development plans, including identifying industry recruitment opportunities created by the high-speed MAREA and BRUSA sub-sea cable landings in Virginia Beach.
- **Energy:** The Mangum Team has produced analyses of the economic and fiscal impact of over 32 GW of proposed solar, wind, battery energy storage, and hydro projects spanning twenty-nine states. Among those projects was Dominion’s 2.6 GW Coastal Virginia Offshore Wind project off of Virginia Beach. In addition, the Mangum Team has also performed economic and fiscal impact analyses for the natural gas, nuclear, oil, and pipeline industries.
- **Advanced Applied Technology:** The Mangum Team specializes in analyzing how advanced technology developments (like data centers, fiber networks, and advanced manufacturing plants) contribute to the state and local economies. We have worked with local governments, trade associations, developers, and operating firms across the country to show how investments in advanced critical infrastructure transform local economies across the country.
- **Policy Analysis:** The Mangum Team also has extensive experience in identifying and quantifying the intended and unintended economic consequences of proposed legislative and regulatory initiatives.

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