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Report to the Governor and the General Assembly of Virginia

Economic Development Incentives 2018
Spending, Performance, and Economic Benefits

JLARC
JOINT LEGISLATIVE AUDIT AND REVIEW COMMISSION

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WHAT WE FOUND

- Virginia spent $1.8 billion on 78 economic development incentives from FY10 to FY17. This amounts to 1.3 percent of total general fund spending during this time. Total spending on incentives in FY17 ($248 million) was slightly less than spending in the previous two fiscal years.
- Nearly 60 percent of the spending on incentives was for tax incentives such as sales and use tax exemptions ($835 million) and tax credits ($180 million). The remaining 42 percent was spent on grants ($715 million) and other incentives such as loans and gap financing programs ($25 million).
- Economic benefits, such as increases in employment, gross domestic product, and personal income, vary widely by type of economic development incentive program.
- Grant programs have substantially larger economic benefits than tax incentives—such as tax credits and sales and use tax exemptions—which account for the majority of spending on incentives.
- Grant programs have a higher economic benefit because they tend to target projects expected to have higher economic benefits. Loan and gap financing programs have a higher economic benefit because they have minimal costs to the state.
- Completed projects receiving grant funds created about 59,000 jobs and $12.2 billion in capital investment or other spending.
- The majority of completed projects receiving grant funds met their capital investment goals, and only one-quarter met their job creation goals.

WHY WE DID THIS STUDY

Through language in the Appropriation Act, the General Assembly directed the Joint Legislative Audit and Review Commission (JLARC) to review and evaluate economic development initiatives. Topics include spending on incentives and activity generated by businesses receiving incentives; the economic benefits of incentives; and the effectiveness of incentives.

JLARC releases two reports each year: a report on overall spending and business activity and an in-depth report on the effectiveness of selected individual incentives. (See Appendix A: Study mandate.) JLARC contracted with the Weldon Cooper Center for Public Service to perform the analysis for both reports.

This report is the second in the series of overall spending and business activity and focuses on incentives that were provided between FY10 and FY17.

Economic Development Incentives 2018

Virginia provides economic development incentives to encourage businesses to locate or expand their operations in the state as part of its economic development strategy. In order to better understand the effectiveness of these incentives in stimulating business activity, the General Assembly directed the Joint Legislative Audit and Review Commission (JLARC) to review spending on and performance of economic development incentives such as grants, tax preferences, and other assistance. (See Appendix A.) JLARC contracted with the University of Virginia's Weldon Cooper Center for Public Service to perform the evaluation.

For purposes of this report, **incentives spending** refers to (1) actual expenditures by the state in the form of grant awards or other financing and (2) tax expenditures, in the form of forgone revenue, through tax credits or sales and use tax exemptions. Actual expenditures may occur for refundable tax credits, such as the film tax credit.

This report is the second in a series of annual reports about Virginia's economic development incentives, trends in state spending on incentives, and performance of incentive programs. Every other year the reports in this series will include information about the economic benefits of total spending on economic development incentives. This report is the first in which information on economic benefits is included.

The report provides summary information on 78 economic development incentive programs, including grants, tax preferences, business loans, and gap financing. The incentive programs covered in this report are funded by the state, are actively providing incentives, and have a primary purpose of promoting economic activity through location or expansion of businesses. Businesses may also benefit from a variety of other grants, tax credits, and exemptions offered by the state for purposes other than economic development; these programs are not included in this report.

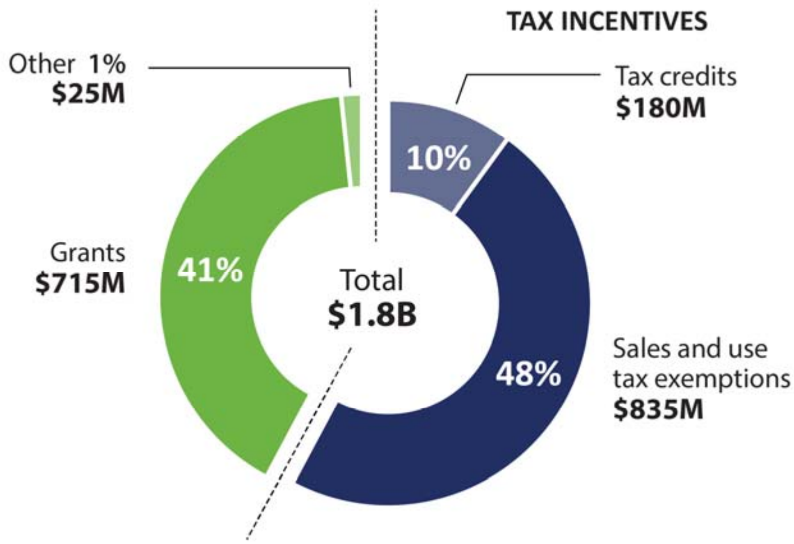
The **time period FY10 to FY17** was chosen for this report because agencies have maintained data as far back as FY10. Starting in 2020, the report will cover a 10-year period.

State spent $1.8 billion on incentives FY10-FY17

Virginia spent $1.8 billion on 78 economic development incentives over the past eight fiscal years (Figure 1), for an average of $220 million per year. Nearly all incentives are funded by the state general fund (with the exception of incentives provided by the Tobacco Region Revitalization Commission), and spending on incentives represented approximately 1.3 percent of total general fund spending between FY10 and FY17. In addition, the vast majority of spending on incentives was forgone revenue from sales and use tax exemptions (48 percent) or incentive grants (41 percent).

Ten incentives accounted for two-thirds of the spending on incentives between FY10 and FY17 (Table 1). The top two—the Data Center Exemption and Railroad Common Carriers Exemption—provided $460 million in exemptions to businesses in capital-intensive sectors that make large purchases of equipment. Because of the incentives, these purchases are exempt from the retail sales and use tax. Other top incentives include the Commonwealth's Opportunity Fund, the state's primary "deal closing" program, which awarded $111 million for 200 projects and the Tobacco Region Revitalization Commission (Tobacco Commission) Megasite Grant, which awarded 32 grants totaling $104 million for six large-scale industrial parks in the Southside and Southwest regions, and Tobacco Region Opportunity Grant, which awarded $98 million in grants.

FIGURE 1
Half of spending on incentives was for sales and use tax exemptions (FY10-FY17)



SOURCE: Weldon Cooper Center analysis of economic development incentive programs.
NOTE: Adjusted for canceled projects, recaptures, and award reductions. Exemptions exclude the 1% sales tax for localities and, in most cases, the additional amounts collected in Northern Virginia and Hampton Roads.

TABLE 1
Ten incentives are responsible for two-thirds of spending (FY10-FY17)

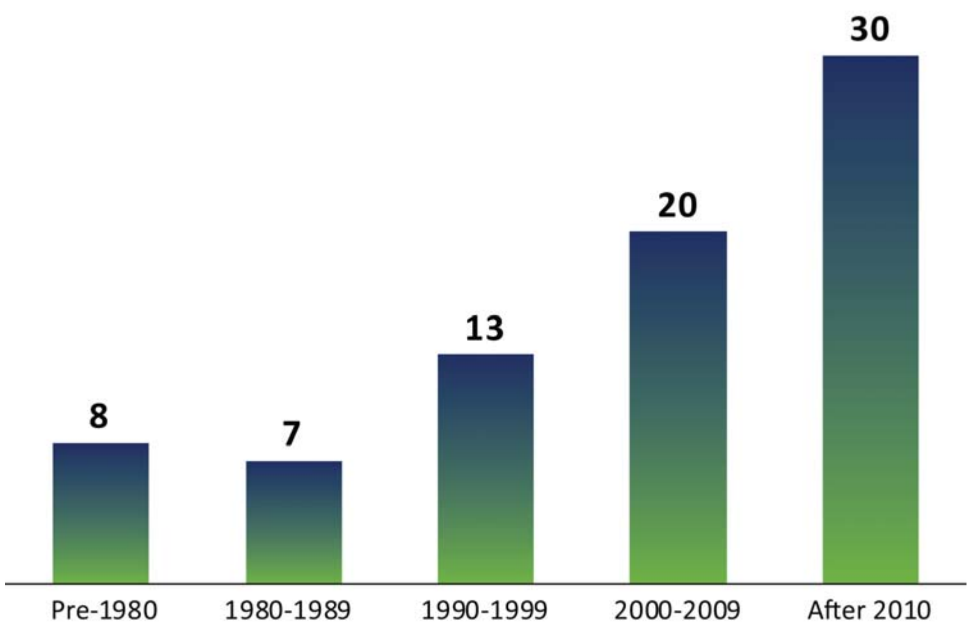
Incentive	Spending	% of spending
Data Center Exemption	$285M	16%
Railroad Common Carriers Exemption	175	10
Commonwealth's Opportunity Fund	111	6
Tobacco Commission Megasite Grant	104	6
Tobacco Region Opportunity Fund	98	6
Real Property Improvement Grant (Enterprise Zone)	83	5
Virginia Coal Production and Employment Incentive Tax Credit	82	5
Airline Common Carriers Exemption	76	4
Virginia Jobs Investment Program	68	4
Semiconductor Manufacturers Exemption	65	4
Subtotal	**$1,148M**	**65%**
All others	$607M	35%
TOTAL	**$1,755M**	**100%**

SOURCE: Weldon Cooper Center analysis of economic development incentives.
NOTE: Excludes several tax preferences for which data was not available. Adjusted for canceled projects, recaptures, and award reductions. Exemptions exclude the 1% sales tax for localities and, in most cases, the additional amounts collected in Northern Virginia and Hampton Roads. (See Appendix C for a description and Appendix D for spending for all incentives.)

Incentives have increased in number and spending

The number of economic development incentives offered by the state has grown over time (Figure 2). The oldest is the Economic Development Access Program—a grant program designed to improve transportation access for industrial sites—which was adopted in 1956. Among the newest, and the largest, is the Advanced Shipbuilding Production Facility Grant Program, a customized performance grant adopted in 2016 for Newport News Shipbuilding, for a new facility to manufacture a new class of nuclear ships. Half of the current incentives were adopted in 2005 or after.

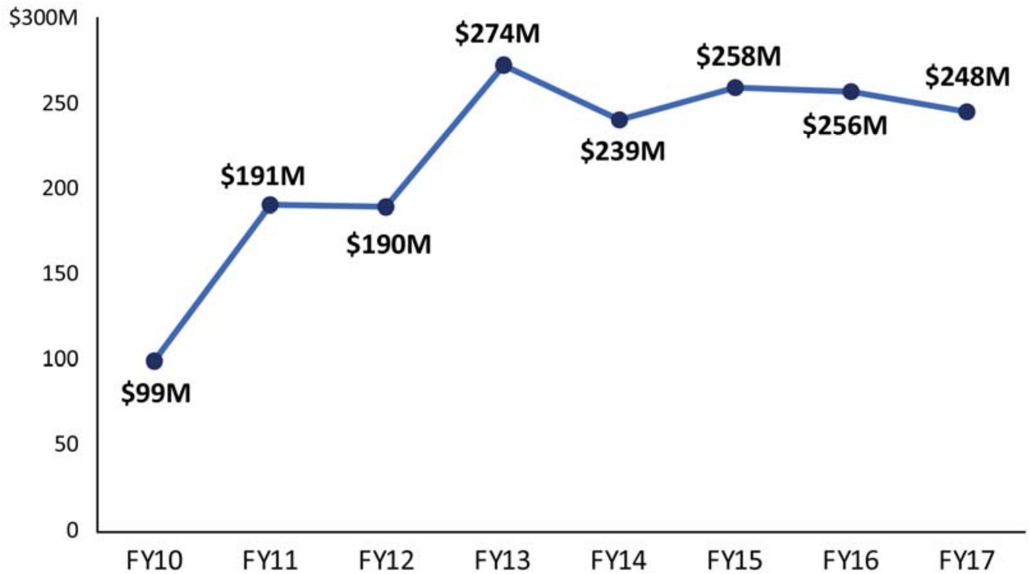
FIGURE 2
Nearly a third of current incentives were adopted in 2010 or after



SOURCE: Weldon Cooper Center analysis of economic development incentive programs.
NOTE: Excludes expired incentives.

The amount spent on economic development incentives increased significantly between FY10 and FY11, spiked in FY13, and has remained fairly constant since FY14 (Figure 3). Much of the increase after FY10 was due to a few programs. Spending increased each year after the adoption of the Data Center Exemption that began in FY11 at an estimated exempted amount of $8 million but is now estimated to total more than $66 million in exemptions annually. Three other programs saw sizable increases between FY10 and FY17: Commonwealth's Opportunity Fund ($14.6 million increase), Virginia Economic Development Incentive Grant ($9.3 million increase), and Rail Common Carrier Exemption (an estimated $8.7 million increase). Only a few programs experienced decreases between FY10 and FY17. These include the Tobacco Region Opportunity Fund (−$5.3 million) and the Semiconductor Manufacturer's Exemption (estimated to be −$2.2 million).

FIGURE 3
Spending on incentives has increased significantly since FY10 but has been fairly consistent since FY14



SOURCE: Weldon Cooper Center analysis of economic development incentive programs.
NOTE: Adjusted for canceled projects, recaptures, and award reductions. Not adjusted for inflation. The trend is nearly identical if adjusted for inflation.

Economic development **grants** are financial incentives provided to businesses in return for locating in the state or expanding business activity. Some grants are discretionary, which means that the state can negotiate the terms of the grant with the business. Other grants are automatically awarded if the business meets the minimum requirements. Grants are not repaid as long as businesses meet program requirements.

Several programs that are not commonly identified as grant programs are included in this category because they provide financial assistance to businesses (or to a third party for their benefit).

More than 3,900 projects were awarded $802 million in grants FY10-FY17

Even though sales and use tax incentives—particularly exemptions—have a larger impact on the state budget, Virginia's grant programs are the most widely recognized economic development incentive. The grant programs—which are typically funded with general funds, with some exceptions—incentivize economic growth by encouraging businesses to expand or locate in the state. Collectively, Virginia's economic development incentive grant programs awarded $802 million to 3,914 projects between FY10 and FY17 (Table 2). Twelve of the 20 grant programs provided more than $20 million in awards each during the time period.

TABLE 2
Grant programs made more than 3,900 awards totaling $802 million (FY10-FY17)

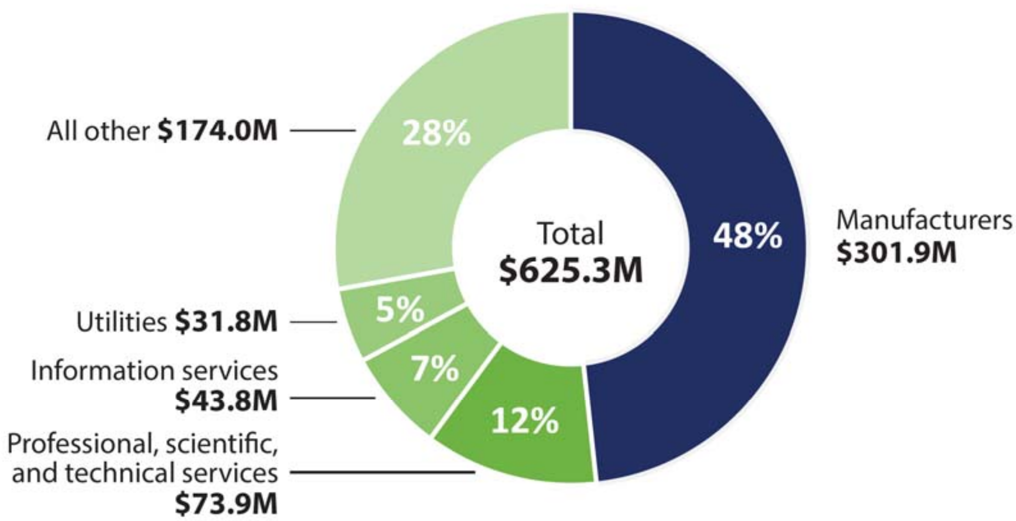
	Total FY10-FY17		Annual average	
Program	**Award amount**	**# of awards**	**Award amount**	**# of awards**
Tobacco Region Opportunity Fund	$146.4M	245	$18.3M	31
Commonwealth's Opportunity Fund	119.0	200	14.9	25
Tobacco Commission Megasite Grant	105.8	32	15.1	5
Virginia Jobs Investment Program	90.9	907	11.4	113
Real Property Investment Grant (Enterprise Zone)	83.1	1,267	10.4	158
Transportation Partnership Opportunity Fund	43.2	12	5.4	2
Virginia Investment Partnership Grant	42.6	52	5.3	7
Virginia Economic Development Incentive Grant	35.3	7	4.4	1
Advanced Shipbuilding Training Facility Grant	32.8	1	4.7	0
Governor's Motion Picture Opportunity Fund	24.1	41	3.0	5
Economic Development Access Program	20.8	37	2.6	5
Job Creation Grant (Enterprise Zone)	20.4	457	2.5	57
Rail Industrial Access Program	9.4	28	1.2	4
Commonwealth Research Commercialization Fund	8.8	143	1.5	24
Small Business Jobs Grant Fund Program	7.3	133	0.9	17
Agriculture and Forestry Industries Devel. Grant	4.8	52	1.2	13
VALET Program	3.1	188	0.4	24
Port of Virginia Economic and Infrastructure Grant	3.0	9	0.7	2
Small Business Investment Grant Fund	1.4	32	0.3	8
Trade Show Assistance Program	0.6	71	0.6	71
All programs	**$802.3M**	**3,914**	**$104.8M**	**570**

SOURCE: Weldon Cooper Center analysis of economic development incentive grants.
NOTE: Includes all awards and amounts *prior* to recaptures, cancelations, or reductions. For this reason, amounts for the Tobacco Region Opportunity Fund, Commonwealth's Opportunity Fund, and the Virginia Jobs Investment Program are higher than amounts shown in Table 1.

Grant funding is targeted to manufacturing sector and in Southside and Southwest Virginia

Almost 50 percent of grant funding was directed to businesses in the manufacturing sector (Figure 4). This sector is commonly represented because grant programs generally target "basic" industry firms, which are companies that export at least half their goods or services outside the state. Targeting these businesses is desirable because they bring new revenue into the state. Another 24 percent of grant funding was directed to businesses in the professional, scientific, and technical service sectors (12 percent); information services sector (7 percent); and utilities sector (5 percent).

FIGURE 4
Nearly half of grant funding was directed to manufacturers (FY10-FY17)



SOURCE: Weldon Cooper Center analysis of economic development incentive grants.
NOTE: Excludes $176 million in awards for which industry information was unavailable. The "all other" category includes businesses in the management of companies and real estate sectors.

Geographically, the largest amount of grant awards went to highly populated localities such as Newport News ($69 million) and Fairfax County ($52 million). Several less populated counties—such as Greensville and Henry—also received large amounts ($38 million each). Ten localities received approximately 50 percent of total awards for the period (Table 3).

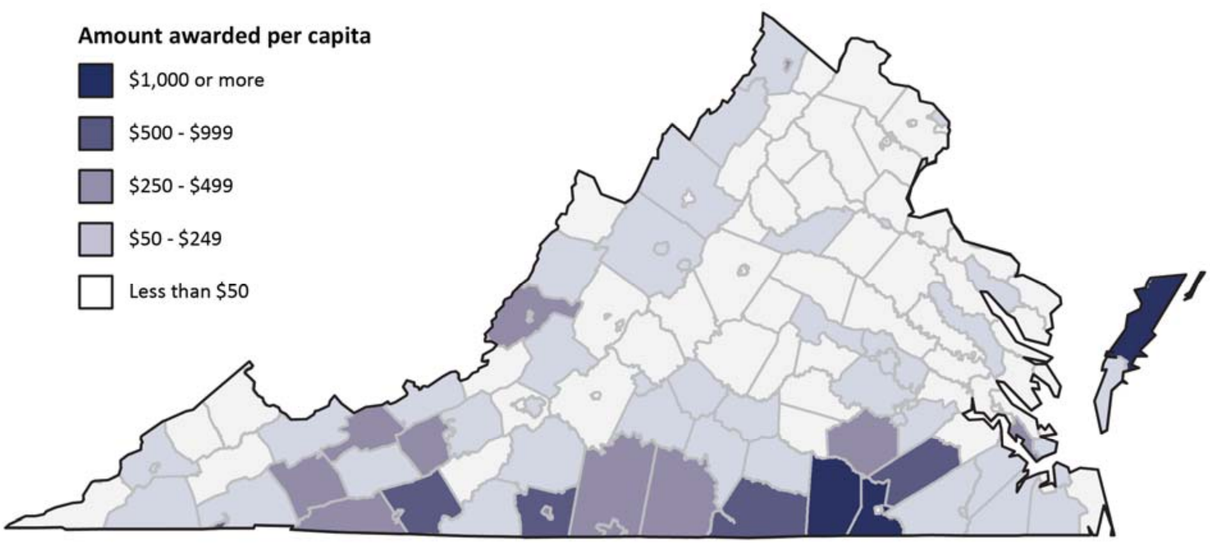
TABLE 3
Ten localities accounted for almost half of grant award amounts (FY10-FY17)

Locality	Amount awarded	% of total amount	# awards	% of total awards
Newport News City	$69	8.6%	221	5.6%
Fairfax County	52	6.5	272	6.9
Henry County	38	4.7	91	2.3
Greensville County	38	4.7	25	0.6
Richmond City	36	4.5	323	8.3
Arlington County	35	4.3	51	1.3
Accomack County	35	4.3	32	0.8
Brunswick County	30	3.8	6	0.2
Mecklenburg County	23	2.9	28	0.7
Henrico County	22	2.7	148	3.8
Subtotal	**$377**	**47.0%**	**1,197**	**30.6%**
All others	425	53.0	2,717	69.4
TOTAL	**$802**	**100.0%**	**3,914**	**100.0%**

SOURCE: Weldon Cooper Center analysis of economic development incentive grants.
NOTE: Localities were not assigned to 13 Governor's Motion Picture Opportunity Fund projects because filming occurred in multiple locations. One Tobacco Commission Megasite Grant is also unassigned.

Rural localities in the southern part of the state received a large proportion of grant funding, relative to population size (Figure 5). Tobacco Region localities received approximately 39 percent of all economic development grant awards, largely due to the contributions of the Tobacco Commission's Tobacco Region Opportunity Fund and Megasite Grant programs. The highest per capita award amounts were in Greensville County ($3,243), which benefited from large awards for the Mid-Atlantic Advanced Manufacturing Center, and Brunswick County ($1,857), which was the location of a Dominion Power gas power plant that received $30 million in financial assistance. (See Appendix E for maps of the regional distribution of grant awards, overall and per capita.)

FIGURE 5
Awards per capita are concentrated in Southside and Southwest Virginia (FY10-FY17)



SOURCE: Weldon Cooper Center analysis of economic development incentive grants.

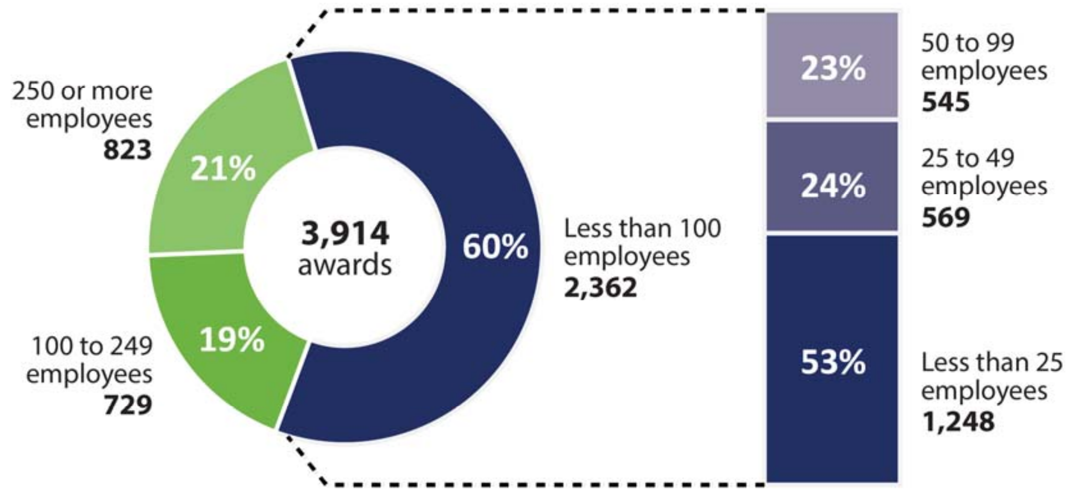
The per capita amount awarded per locality has slight positive association with the 2017 local unemployment rate, indicating that more funds are generally provided to localities that are economically distressed. The number of awards per capita is even more positively correlated with the local unemployment rate.

Many businesses have operations in multiple **locations**. Grants and other incentives are often provided to projects that occur at a specific business location.

Majority of grant projects were for business locations that had fewer than 100 employees at the time of the award

Sixty percent of grant awards between FY10 and FY17 were for business locations that had 100 or fewer employees at the time that the awards were made (Figure 6). Of this group, 53 percent were for business locations with 25 employees or fewer. These businesses received grant awards from programs, such as the Small Business Investment Grant or Commonwealth Research and Commercialization Fund, that tend to make awards to start-up businesses with 10 or fewer employees, on average. In contrast, 21 percent of grant awards were for large businesses with 250 or more employees. The custom grant and four other grant programs—Transportation Partnership Opportunity Fund, Virginia Investment Partnership Grant, Virginia Economic Development Incentive Grant, and the Port of Virginia Economic and Infrastructure Grant—tend to make awards to business locations with 250 employees or more. (See Appendix F for the average employment size of grant recipients by program.)

FIGURE 6
Majority of grant recipients were for business locations with fewer than 100 employees (FY10-FY17)

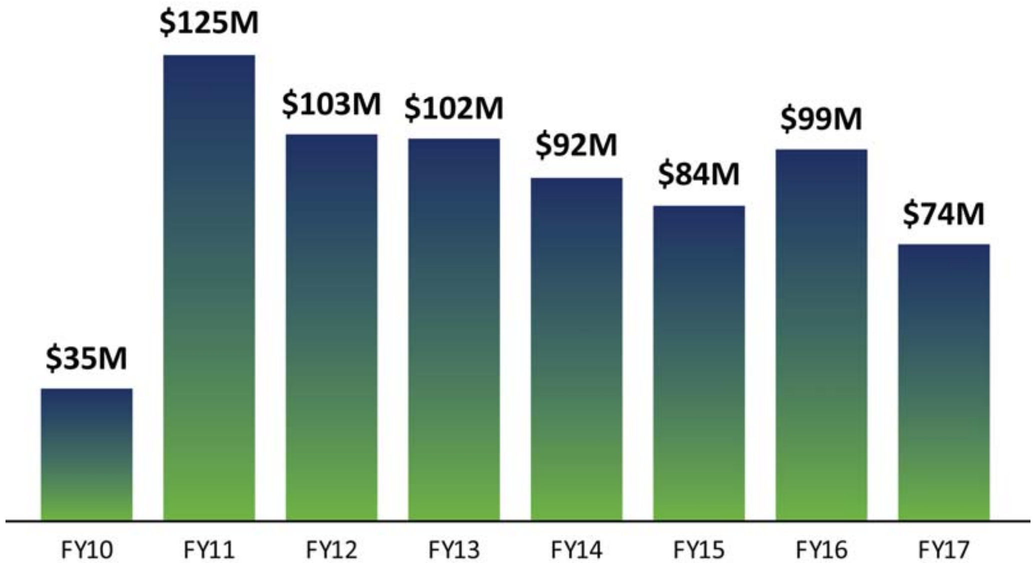


SOURCE: Weldon Cooper Center analysis of economic incentive grant awards.
NOTE: Employment records were matched with 2,429 of the 3,914 awards (62 percent) and $339 million of $802 million in total awards. The numbers and percentages shown in the figure reflect a weighted distribution of awards and amounts using information from the matched records.

Grant awards have generally declined since FY11

While grant awards increased dramatically between FY10 and FY11, they have since declined (Figure 7). Grant awards in FY10 were low because of the lingering effects of the 2008-09 recession on business activity. Then grant awards more than tripled in FY11 when two large incentive programs were introduced: the Tobacco Commission Megasite Grant, which awards $15 million in incentives per year on average, and the Advanced Shipbuilding Training Facility Grant, which made a one-time award of $30 million to Newport News Shipbuilding. Grant awards declined each year after FY11, with the exception of FY16 when the Commonwealth's Opportunity Fund and Governor's Motion Picture Opportunity Fund awarded significantly larger amounts. Much of the overall decrease in awards since FY11 is a result of declining Tobacco Commission Megasite and Tobacco Region Opportunity Fund grant awards over time. (See Appendix D for grant awards by program.)

FIGURE 7
Grant awards have generally declined since FY11



SOURCE: Weldon Cooper Center analysis of economic incentive grant awards.
NOTE: Adjusted for canceled projects, recaptures, and award reductions. Not adjusted for inflation. (The trend is the same if adjusted for inflation.) Amounts for FY11 to FY16 are slightly different than what was reported in Economic Development Incentives 2017 because of adjustments made to ensure awards were captured in the appropriate fiscal year.

Programs vary in their amount awarded per job created and level of business spending

The size of grant awards ranged widely by program (Table 4). Awards ranged from a high of $5.0 million to a low of $8,300 per project, on average (excluding the one-time custom grant award to Newport News Shipbuilding of $32.7 million under the Advanced Shipbuilding Training Facility Grant).

The size of the award in relation to project goals also varied widely by program, based on program goals, guidelines, and the types of projects targeted (Table 4). Grant programs require that projects meet certain minimum requirements in order to be eligible for grant funding. These minimum requirements vary based on the goals of the program, but the most common are job creation and some form of business investment or spending in Virginia. The average grant award per expected job for Virginia projects was $4,200 between FY10 and FY17, but it ranged from a high of $48,438 per job (Transportation Partnership Opportunity Fund) to a low of less than $1,000 (Virginia Jobs Investment Program and Small Business Jobs Grant Fund). The average award per $1,000 of expected capital investment or additional spending was $24 and ranged from a high of $294 (Economic Development Access Program) to a low of $5 (Agriculture and Forestry Industries Development Grant).

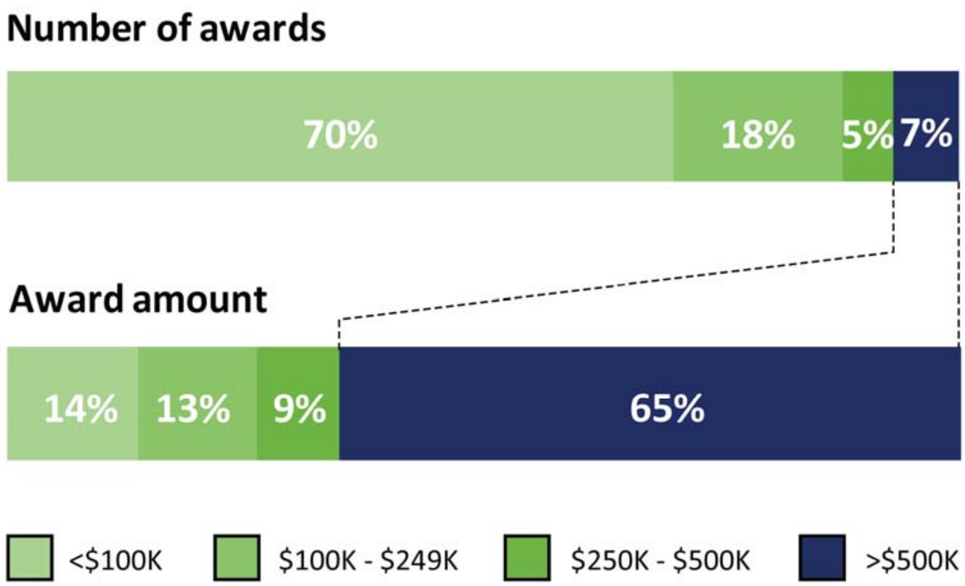
TABLE 4
Average grant awards by program varied widely (FY10-FY17)

Program	Average award amount per: Project	Average award amount per: $1,000 in spending or investment in Virginia (expected)	Average award amount per: Job created in Virginia (expected)
Transportation Partnership Opportunity Fund	$3,596,518	$138	$48,438
Advanced Shipbuilding Training Facility Grant	32,777,745	109	32,778
Rail Industrial Access Program	334,352	41	9,028
Virginia Economic Development Incentive Grant	5,042,857	83	8,261
Virginia Investment Partnership Grant	818,269	13	7,317
Tobacco Region Opportunity Fund	597,456	22	6,470
Small Business Investment Grant Fund	42,918	n.a.	6,300
Commonwealth's Opportunity Fund	594,870	13	3,563
Agriculture and Forestry Industries Devel. Grant	91,571	5	2,397
Port of Virginia Economic and Infrastructure Grant	331,389	n.a.	2,078
Job Creation Grant (Enterprise Zone)	44,554	n.a.	1,701
Virginia Jobs Investment Program	100,267	10	925
Small Business Jobs Grant Fund Program	54,517	24	844
Tobacco Commission Megasite Grant	3,305,360	**	n.a.
Governor's Motion Picture Opportunity Fund	587,072	**	n.a.
Economic Development Access Program	562,284	294	n.a.
Real Property Investment Grant (Enterprise Zone)	65,565	39	n.a.
Commonwealth Research Commercialization Fund	61,365	234	n.a.
VALET Program	16,383	n.a.	n.a.
Trade Show Assistance Program	8,302	n.a.	n.a.
Average, all projects	**$204,990**	**$24**	**$4,189**

SOURCE: Weldon Cooper Center analysis of economic development incentive grants.
NOTE: Expected jobs and spending or investment were used for programs that awarded grants prior to when project performance began. *Actual* jobs and spending or investment were used for programs for which performance already occurred prior to projects receiving a grant award. The goal of the VALET program is to increase a company's international sales rather than to encourage job creation or capital investment; therefore, the average award amount per $1,000 in spending or investment or jobs created is not relevant for this program.
n.a. indicates that job creation or investment is not among the criteria considered for obtaining the grant.
** indicates that data was not provided for the program.

From FY10 to FY17, only seven percent of awards were for more than $500,000 each. However, these larger awards accounted for the majority of the grant funding (Figure 8).

FIGURE 8
Seven percent of grant awards accounted for 65 percent of total grant funding (FY10-FY17)



SOURCE: Weldon Cooper Center analysis of economic development incentive grants.
NOTE: Number of grants awarded is 3,914. Total amount awarded is $802.3 million (not adjusted for cancelations, recaptures, and refunds).

Completed projects represent 2,946 projects and $375 million in awards. Not all projects that received a grant award between FY10 and FY17 had completed their performance at the end of FY17.

It is likely that the majority of the jobs and business investment or spending by completed projects would have occurred without incentives. In 2012, JLARC reported that approximately 10 percent of location and expansion decisions, on average, are swayed by typical economic development incentives. However, the success in swaying business decisions likely varies by program (JLARC, *Review of State Economic Development Incentive Grants*, 2012).

Completed projects created nearly 59,000 jobs and $12 billion in business investment and spending

Projects that received grant awards between FY10 and FY17 and completed their location or expansion project collectively created an estimated 59,000 jobs and $12.2 billion in capital investment or other spending (Table 5). Completed projects that received Virginia Jobs Investment Program grants accounted for the largest share of jobs (34,550) and capital investment and other spending ($5.4 billion). Projects funded through the Commonwealth's Opportunity Fund ranked second in job creation (14,266 jobs) and business spending ($4.0 billion).

TABLE 5
Completed projects created nearly 59,000 jobs and $12 billion in business spending or investment (FY10-FY17)

Program	# of projects	Spending or investment ($M)	Jobs created
Virginia Jobs Investment Program	683	$5,423M	34,550
Commonwealth's Opportunity Fund	88	3,978	14,266
Job Creation Grant (Enterprise Zone)	457	0	11,967
Tobacco Region Opportunity Fund	140	2,160	6,170
Small Business Jobs Grant Fund Program	86	**	2,041
Advanced Shipbuilding Training Facility Grant	1	358	1,520
Port of Virginia Economic and Infrastructure Grant	9	0	1,435
Tobacco Commission Megasite Grant	15	n.a.	450
Agriculture and Forestry Industries Devel. Grant	3	164	429
Commonwealth Research Commercialization Fund	107	28	--
Economic Development Access Program	20	31	--
Governor's Motion Picture Opportunity Fund	37	194	--
Rail Industrial Access Program	24	195	n.a.
Real Property Investment Grant (Enterprise Zone)	1,267	2,151	n.a.
Transportation Partnership Opportunity Fund	9	--	--
	Total (duplicated):	**$14,683M**	**72,828**
	Total (unduplicated):	**$12,183M**	**58,687**

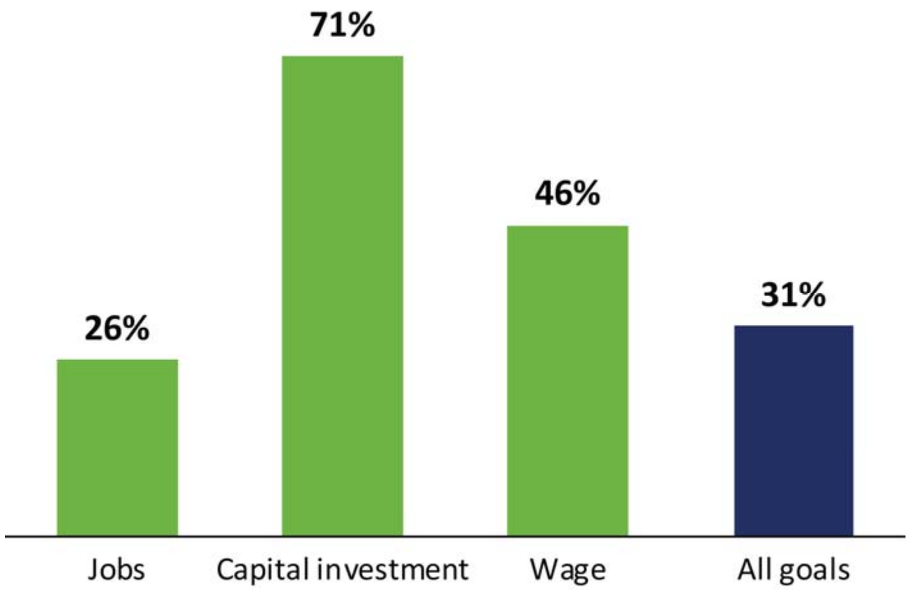
SOURCE: Weldon Cooper Center analysis of economic development incentive grants.
NOTE: Completed projects represented about $375 million in total awards across programs. Some grant programs, such as the Major Eligible Employer and Virginia Investment Partnership Grants had no completed projects during this time period. Jobs are not counted for the Governor's Motion Picture Opportunity Fund program because they are not permanent full-time jobs. Many projects receive grants from more than one program. No unique identifiers exist to easily identify projects that received grants from multiple programs. The unduplicated number of jobs and investment or spending is an estimate based on a review of projects with similar business names, locations, time periods, and other factors. VALET program (142 completed projects) is not included in the table because its goal is to increase a company's international sales, and job creation and capital investment are not reported by program participants.
n.a. indicates that job creation or investment is not one of the criteria for receiving the grant.
** indicates that data was not provided for program.

Majority of completed projects met capital investment goals, and only one-quarter met their job creation goals

Some grant programs establish an "up front" award agreement with project-specific goals. For the 10 programs that establish project-specific goals, job creation, capital investment, and average wages paid are the most common goals. Several programs use alternative goals that are more relevant to their program. For example, transportation-related programs such as the Rail Industrial Access Program and Port of Virginia Economic and Infrastructure Grant establish project-specific goals for rail car volume and Virginia port usage, respectively. (See Appendix G for goals across programs.)

Seventy-one percent of completed projects met or exceeded their project-specific goals for capital investment or other spending (Figure 9). Nearly half met their average wage goals and about one-quarter met their job creation goals.

FIGURE 9
Majority of completed projects met their capital investment goals (FY10-FY17)



SOURCE: Weldon Cooper Center analysis of economic development incentive grants.
NOTE: N=1,304 duplicated projects. Only includes projects from programs that establish project-specific goals. Some programs allow projects to attain 90 percent of specific goal(s) before award reduction or recapture is made. For simplicity of making calculations across programs, projects that exceeded 90 percent (or other established percentage) for a specific goal but did not achieve 100 percent are not included in the figure.

Attainment rates for project-specific goals varied widely by program (Table 6). The Port of Virginia Economic and Infrastructure Program was the only program for which the project-specific goals for all projects were attained. The Agriculture and Forestry Industries Development Grant had three projects that were completed between FY10 and FY17, and those projects met job creation and capital investment goals. However, one project did not attain a Virginia product purchase goal and average wage levels were not verified for any of the projects. Goal achievement was especially low for some programs. Only 14 percent of the 140 completed Tobacco Region Opportunity Fund projects met all project-specific goals.

TABLE 6
Attainment of project-specific goals varied by program (FY10-FY17)

Program	# of projects	% of projects that achieved goal: Job creation	Capital investment	Average wage	All goals
Port of Virginia Economic and Infrastructure Grant	9	100	n.a.	n.a.	100
Commonwealth Research Commercialization Fund	108	n.a.	**	n.a.	81
Agriculture and Forestry Industries Devel. Grant	3	100	100	**	67
Rail Industrial Access Program	24	n.a.	67	n.a.	63
Commonwealth's Opportunity Fund	88	56	69	69	47
Virginia Jobs Investment Program-Retraining	175	n.a.	96	58	37
Economic Development Access Program	20	n.a.	20	n.a.	20
Tobacco Region Opportunity Fund	140	29	38	41	14
Virginia Jobs Investment Program – Job Creation	508	20	73	40	10
Small Business Jobs Grant Fund Program	86	13	n.a.	43	8
Advanced Shipbuilding Training Facility Grant	1	100	100	n.a.	0
Total	**1,304**	**26%**	**71%**	**46%**	**31%**

SOURCE: Weldon Cooper Center analysis of economic development incentive grants.
NOTE: Some programs have other goals, which are reflected in the "All goals" column. The goal of the VALET program is to increase international sales, and 73 percent of the participants met or exceeded their goal for increased international sales. Some programs, such as the Commonwealth's Opportunity Fund, allow projects to attain 90 percent of specific goals before award reduction or recapture is made. For simplicity of making calculations across programs, projects that exceeded 90 percent (or other established percentage) for a specific goal but did not achieve 100 percent are not shown. For the Commonwealth's Opportunity Fund, 65 percent of projects met at least 90 percent of their job creation goal and 76 percent met at least 90 percent of their capital investment goal. The Virginia Jobs Investment Program and Small Business Jobs Grant Program do not establish project-specific goals, but they are included here because grant awards are committed based on an expected number of jobs and amount of capital, although reimbursement is established as a set amount per job actually created and paid post-performance. This may lead to over-commitment of funding to many projects that do not create the number of jobs expected. Some projects do not collect information on average wage levels upon completion of the project.
n.a. indicates that job creation or investment is not one of the criteria for receiving the grant.
** indicates that data was not available for program.

Some grant *programs* were successful overall in achieving goals for job creation and capital investment, even though some of the *projects* funded by the programs did not achieve their project-specific goals. For example, only 56 percent of completed projects that received a Commonwealth's Opportunity Fund grant fully achieved their job creation goals (Table 6). However, some projects far exceeded their job creation goal, such that collectively, all projects created 106 percent of the jobs that were expected (Table 7). This program also had overall success in achieving its capital investment and average wage goal. The Tobacco Region Opportunity Fund, however, was not successful overall in achieving its goals, with the exception of the average wage goal.

TABLE 7
Projects for most grant programs collectively met their job creation and average wage goals (FY10-FY17)

Program	Job creation	Spending or investment	Average wage
Agriculture and Forestry Industries Development Grant	343%	97%	**
Advanced Shipbuilding Training Facility Grant	152	119	n.a.
Commonwealth's Opportunity Fund	106	125	118%
Port of Virginia Economic and Infrastructure Grant	100	n.a.	n.a.
Virginia Jobs Investment Program	53	83	109
Small Business Jobs Grant Fund Program	40	**	108
Tobacco Region Opportunity Fund	40	66	143
Commonwealth Research Commercialization Fund	n.a.	97	n.a.
Economic Development Access Program	n.a.	69	n.a.
Rail Industrial Access Program	n.a.	97	n.a.

SOURCE: Weldon Cooper Center analysis of economic incentive grants.
NOTE: The Virginia Jobs Investment Program and Small Business Jobs Grant Program do not establish project-specific goals like other programs. However, they are included here because grant awards are committed based on an expected number of jobs and amount of capital, although reimbursement is established as a set amount per job actually created and paid post-performance. This leads to over commitment of funding to many projects that do not create the number of jobs expected. Not all projects collect average wage levels upon completion of the project to calculate the percentage of projects that attained wage goals. The VALET program is excluded from the table because its goal is to increase international sales. Collectively, program participants increased international sales by 134 percent of the goal.
n.a. indicates that job creation or investment is not one of the criteria for receiving the grant.
** indicates that data was not provided for program.

Grant awards totaling $88 million were canceled, reduced, or recaptured because projects did not achieve goals

When projects do not go forward or do not meet their goals, the grant awards may be canceled, reduced, or recaptured. Of the total amount of grant awards paid or committed between FY10 and FY17, $88 million (11 percent) was canceled, reduced, or recaptured because projects did not go forward or did not meet their goals (Figure 10). Half of the $88 million was never paid because projects did not go forward and were canceled. Another 35 percent was not paid to projects that did not meet their goals and the award amount was reduced.

Agencies administering grants reported **recapturing** $13 million in grant awards. In some cases, this may be less than the full amount that should have been recaptured according to grant guidelines. The upcoming in-depth reports on these incentives will provide more information about agency efforts to recapture funding when projects do not achieve their goals.

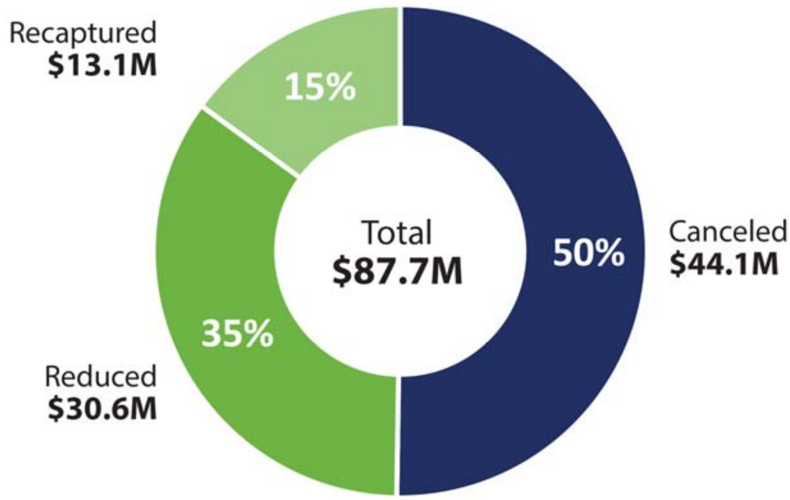
Exemptions to Virginia's **retail sales and use tax** can be claimed by businesses for qualifying purchases.

Virginia's retail sales and use tax is currently 7% of eligible purchases in the Historic Triangle (the city of Williamsburg and the counties of James City and York), 6% of eligible purchases in Northern Virginia and Hampton Roads, and 5.3% of eligible purchases in the rest of the state. One percent is retained by the locality where the purchase is made.

The **sales tax** applies to the sales of certain goods and services purchased in the state and is collected by the merchant at the point of sale.

The **use tax** is levied on out-of-state purchases that are used in Virginia and is self-assessed and remitted to the state by the consumer.

FIGURE 10
Grant awards totaling $88 million were canceled, reduced, or recaptured (FY10-FY17)



SOURCE: Weldon Cooper Center analysis of economic development incentive grant awards or award commitments and program information of recaptures, reductions, and cancelations.

Approximately $13 million was recaptured between FY10 and FY17 from 72 projects that failed to meet their performance goals. Recaptures are a feature of six state programs that make up-front award payment. Each of these programs recaptured small percentages of the funds they awarded:

- Rail Industrial Access Program: eight percent;
- Commonwealth's Opportunity Fund: seven percent;
- Tobacco Region Opportunity Fund: three percent;
- Economic Development Access Program: two percent; and
- Commonwealth Research Commercialization Fund: one percent.

The Agriculture and Forestry Industries Development Grant also has a recapture provision, but there were no recaptures for projects during the period.

Through tax incentives, businesses saved $1 billion FY10-FY17

Virginia's economic development tax incentives resulted in $1.02 billion in tax savings to businesses between FY10 and FY17. Most (82 percent) of this amount was because of sales and use tax exemptions that provide savings to businesses on their purchases of equipment and supplies that qualify for the exemption. Ten of the 18 sales and use tax exemptions each provided more than $20 million in incentives to businesses between FY10 and FY17 (Table 8). A number of these exemptions are provided to very capital-intensive industries, such as data centers and airlines, that must make substantial purchases of equipment upon start-up or upgrading their operations.

TABLE 8
Sales and use tax exemptions provided an estimated $835 million in tax savings to businesses (FY10-FY17)

Exemption	Total savings ($M)	Average savings per year ($M)
Data Centers Exemption	$284.9M	$35.6M
Railroad Common Carriers Exemption	174.7	21.8
Airline Common Carriers Exemption	76.1	9.5
Semiconductor Manufacturers Exemption	65.0	8.1
Ships and Vessels Exemption	59.3	7.4
Research and Development Exemption	33.8	4.2
Media Provider Equipment Exemption	33.7	4.2
Certain Printed Materials for Out-of-State Distribution Exemption	30.3	3.8
Railroad Rolling Stock Exemption	27.5	3.4
Pollution Control Equipment & Facilities Exemption	26.8	3.4
Film, Television, and Audio Production Inputs Exemption	7.2	0.9
Uniform Rental and Laundry Businesses Exemption	6.0	0.8
Out-of-State Nuclear Facility Repair Exemption	3.9	0.5
Taxi Parts and Radios Exemption	2.4	0.3
Semiconductor Wafers Exemption	1.9	0.2
Virginia Spaceport Users Exemption	0.8	0.1
Contractor Temporary Storage Exemption	0.8	0.1
Electrostatic Duplicators Exemption	0.1	<0.1
Total	**$835.1M**	**$104.4M**

SOURCE: Weldon Cooper Center analysis of economic development incentives.
NOTE: Exempted amounts are estimates and exclude the 1% sales tax for localities and, in most cases, the additional amounts collected in Northern Virginia and Hampton Roads. (See Appendix B for methodology used to estimate the sales and use tax exemptions.)

Economic development tax credits provided much less ($180 million) in savings to businesses relative to exemptions between FY10 and FY17 (Table 9). Only three of the 15 tax credits awarded more than $20 million in credits during this period. Many of the credits are designed to encourage businesses such as manufacturers to locate or expand in Virginia. Tax credits that have been adopted more recently are designed to incentivize businesses in other industries (film, wineries, and transportation or distribution companies) to locate or expand in Virginia.

Tax credits allow businesses or their owners to reduce their income tax liability, dollar for dollar, according to the amount allowed under the credit.

Information on **job creation, spending, and other business requirements** in return for receiving tax incentives is not readily available as it is for grants.

Performance of tax incentives will be included in upcoming reports detailing the findings of in-depth evaluations of individual incentives. As part of this effort, JLARC staff will collect performance data—which is either not currently collected or not readily available—on tax incentives.

TABLE 9
Tax credits provided more than $180 million in tax savings to businesses (FY10-FY17)

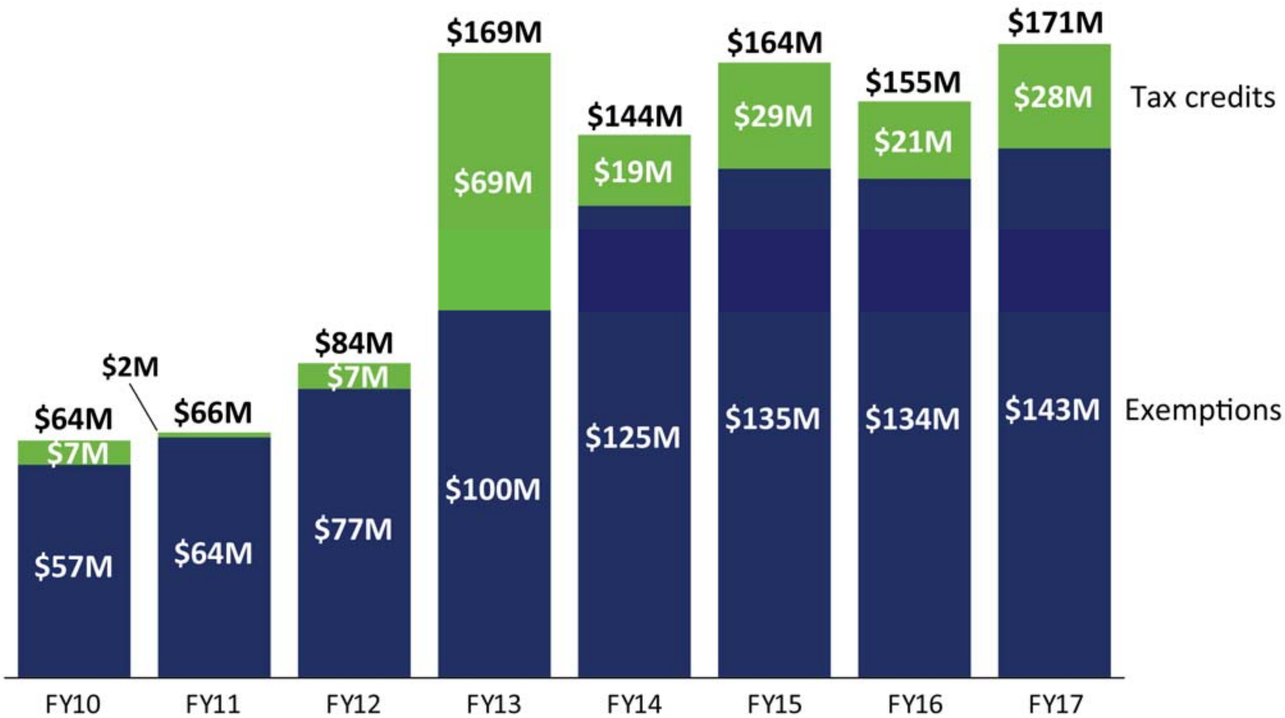
Tax credit	Total savings ($M)
Virginia Coal Production and Employment Incentive Tax Credit	$82.3M
Major Business Facility Job Tax Credit	22.3
Motion Picture Production Tax Credit	22.2
Research and Development Expenses Tax Credit	18.0
Qualified Equity and Subordinated Debt Investment Tax Credit	16.5
Recyclable Materials Processing Equipment Tax Credit	10.7
Virginia Port Volume Increase Tax Credit	4.3
Worker Retraining Tax Credit	1.3
International Trade Facility Tax Credit	1.0
Farm Wineries and Vineyards Tax Credit	0.8
Barge and Rail Usage Tax Credit	0.6
Telework Expenses Tax Credit	0.2
Biodiesel and Green Diesel Fuels Producers Tax Credit	<0.1
Green Job Creation Tax Credit	0.0
Major Research and Development Tax Credit	0.0
Total, all tax credits	**$180.4M**

SOURCE: Weldon Cooper Center analysis of tax credit information from the Department of Taxation.
NOTE: The average tax credit award per year is not reported for tax credits because several new programs were adopted during this time period and several other programs provided too few awards for disclosure purposes.

Savings to businesses through tax incentives more than doubled FY10-FY17

Annual tax savings realized by businesses because of economic development tax exemptions and credits more than doubled between FY10 and FY17 (Figure 11). This occurred for several reasons. The Data Center Sales and Use Tax Exemption became effective after FY10; by FY17 the exemption had an estimated revenue impact of more than $65 million annually. Gradual improvements in the economy since FY10 also led to a recovery in business spending and investment. The increase in investment magnified the fiscal impact of sales and use tax exemptions that target capital intensive industry sectors such as rail, air, and water transportation companies. Savings from tax credits were highest in FY13 because the Virginia Coal Production and Employment Incentive Tax Credit experienced a large amount of credit redemptions ($59.5 million). According to the Department of Taxation, a large number of carryover credits were claimed in FY13.

FIGURE 11
Savings to businesses through tax incentives increased (FY10-FY17)



SOURCE: Weldon Cooper Center analysis of economic development incentives.
NOTE: Exempted amounts are estimates and exclude the 1% sales tax for localities and the additional amounts collected in Northern Virginia and Hampton Roads. Not adjusted for inflation. The trend is nearly identical if adjusted for inflation.

Through financing programs, businesses obtained $39 million in loans and gap funding FY10-FY17

Virginia offers six incentive programs that are designed to assist firms in securing additional debt and equity financing. The Virginia Small Business Financing Authority (VSBFA) administers four programs that provide loan assistance to eligible businesses:

- Economic Development Loan Fund provides loan financing for eligible small businesses that create permanent full-time jobs.
- Loan Guaranty Program assists small businesses to obtain loans by reducing bank credit risk.
- State Cash Collateral Program assists small businesses that lack the necessary collateral to obtain a loan.
- SWaM Loan Fund provides small loans to small businesses to use for working capital, financing accounts receivable and inventory, and other short-term financing needs.

Venture capital is financing that investors provide to startup companies and small businesses that are believed to have long-term growth potential.

Virginia also offers several gap financing programs. The Center for Innovative Technology offers gap funding through its Growth Acceleration Program, which enables high-growth potential technology firms in targeted industries to obtain additional venture capital investment. The Virginia Tourism Corporation administers the Tourism Development Financing Program to large-scale tourism projects. This program was created in 2011 and allows eligible projects to keep a portion of state sales and use taxes that are generated by the project. Only a few projects have begun receiving state funding.

These financing programs incentivize different types of business activity than the grant programs discussed previously. Over half of VSBFA assistance was provided to small businesses in the service industry. Growth Acceleration Program recipients were principally found in professional, scientific, and technical services and information industries where enterprises in high-tech fields such as biotechnology and software development are found. Nearly half of grant funding was for manufacturers.

These financing programs also concentrate awards in different regions than grant programs. Thirteen percent of VSBFA assistance went to projects in non-metropolitan areas, whereas 37 percent of all grant funds went to projects in non-metropolitan areas. Over three-fourths of Growth Acceleration Program assistance went to firms in Northern Virginia, with over half in Fairfax County alone. A large portion of the remaining award amounts were made to firms in localities that are home to the state's major research universities.

VSBFA programs helped businesses obtain nearly $26 million in loans and equity financing

Small businesses aided by the four VSBFA programs obtained $25.8 million in loan and equity financing between FY10 and FY17 (Table 10). In most cases, state appropriations were not directly used to finance the loans or provide the obligation to secure the loans. While programs may have received appropriations in the past, they are revolving loan funds, which means they utilize interest and principal payments on old loans to issue new ones, or receive funding from other self-financing programs offered by VSBFA.

The average loan or equity amount provided or secured by the four programs was $104,997, but the average varied by program. The Economic Development Loan Fund provided the greatest amount of loan assistance at $654,673 per project. The SWaM Loan Fund provided the least, at $20,404 per project.

TABLE 10
VSBFA programs helped businesses secure nearly $26 million in loans or equity financing

Program	Amount awarded	# of projects	Average award	# of jobs	Loan/equity assistance per job
Economic Development Loan Fund	$2,618,692	4	$654,673	284	$9,221
Loan Guaranty Program	18,036,294	75	240,484	573	31,477
State Cash Collateral Program	1,930,000	8	241,250	132	14,677
SWaM Loan Fund	3,244,200	159	20,404	400	8,111
Total	**$25,829,186**	**246**	**$104,997**	**1,389**	**$9,221**

SOURCE: Weldon Cooper Center analysis of economic development incentives.
NOTE: VSBFA programs use only a small portion of state funding to secure loan financing. Jobs reported are expected jobs.

The four programs collectively were expected to add 1,389 jobs. The average loan or equity assistance per job was $9,221, on average. This figure is not directly comparable to the average grant award per job ($4,189) because the cost of the programs to the state represents only a small portion of the total loan amount. For example, the VSBFA Loan Guaranty Program provides the financial guarantee to secure a loan provided by a private bank on behalf of an eligible business. The program would only be required to obligate funds if an eligible business were to default on its loan. The SWaM loan is a direct loan provided by VSBFA, but funding for the loan is derived from fees from other bond financing provided by VSBFA and not state appropriations.

Growth Acceleration Program provided businesses a total of $13.6 million in financing

Recipients of the Growth Acceleration Program financing received $13.6 million between FY10 and FY17 to attract venture capital investment. This program made awards to 204 projects, for an average award of $66,740. Program expenditures reached a peak of $3.5 million in total awards in FY14 but have fallen to $1.6 million in each of the past two fiscal years. All 32 of the completed projects in the Growth Acceleration Program met their financing objectives for the period, according to the Center for Innovative Technology.

Economic impact analysis of expenditures by incentive recipients between FY10 and FY17 was conducted using economic modeling software developed by REMI, Inc.

(See Appendix H for the economic impact analysis used in this study.)

Grants have substantially larger economic benefit than tax incentives

Virginia's economic development incentives are estimated to generate additional economic activity for the state. It is estimated through economic impact analysis that private sector employment increased by 4,637 jobs per year, Virginia GDP increased by $723 million per year, and statewide personal income increased by $416 million per year, on average, because of all incentives (Table 11). For every $1 million in spending on all incentives between FY10 and FY17, it is estimated that an additional 35 jobs, $5 million in Virginia GDP, and $3 million in personal income per year, on average, are added to the Virginia economy because of the incentives.

Net impact is the increase in economic activity induced by the incentive, adjusted for the opportunity cost of increasing taxes to pay for the incentive.

(See Appendix H for information on the total economic impact and the opportunity cost of increasing taxes.)

TABLE 11
Grant programs have larger economic benefit than tax incentives (FY10-FY17)

	Annual average (FY10-FY17)				
	Grants	**Tax credits**	**Tax exemptions**	**Loan and gap financing programs**	**All incentives**
Net impact to Virginia economy					
Private employment	3,878 jobs	26 jobs	530 jobs	203 jobs	4,637 jobs
Virginia GDP	$614.1 M	$2.0 M	$73.4 M	$33.0 M	$722.6 M
Personal income	$350.5 M	−2.2 M	$45.1 M	$18.3 M	$416.2 M
Impact to Virginia economy per $1 million of spending					
Private employment	94.2 jobs	9 jobs	13 jobs	794 jobs	35 jobs
Virginia GDP	$14.6 M	$1.0 M	$1.6 M	$128.3 M	$5.1 M
Personal income	$8.5 M	$0.8 M	$1.2 M	$71.5 M	$3.2 M
Impact to state revenue					
Total revenue	$24.7M	$1M	$5.5M	$1.3M	$32.12
Cost of incentive	$44.8M	$23.0M	$104.7M	$0.3M	$172.3M
Net revenue	−$20.1M	−$22M	−$99.1M	$1.0M	−$140.1M
Return in revenue for every $1 spent	55¢	3¢	5¢	$4.82	19¢

SOURCE: Weldon Cooper Center economic impact analysis of business activity induced by Virginia's economic development incentive programs between FY10 and FY17.
NOTE: Includes direct, indirect, and induced impacts. Assumes that only a portion of employment creation, capital investment, sales, or other activity is attributable to the programs. The gross impact on Virginia's economy is used to calculate the impact per $1 million per incentive awards and the impact to state revenue. This is consistent with how the economic development research literature typically calculates these impacts. Estimates of the economic benefits of grants are adjusted to account for projects that receive grants from more than one program as indicated in Table 5. Some additional duplication may still exist for projects that receive a grant and a tax credit, for example, but it is expected to be slight. (See Appendix H for more information about the economic impact estimates and the detailed results on total impact of the incentives, impact of raising income taxes by the amount of the incentives [opportunity cost], and revenue generated by source.)

The additional economic activity generated by Virginia's incentives varies widely by type of incentive, with grant programs—particularly the Virginia Jobs Investment Program, Commonwealth's Opportunity Fund, and Tobacco Region Opportunity Fund which require job creation—accounting for more than 80 percent of additional jobs, Virginia GDP, and personal income because of incentives. Sales tax exemptions—despite accounting for nearly half of the spending on incentives—and tax credits account for only a small portion of the additional economic activity (Table 11). In fact, tax credits have a negative impact on personal income because the reduction in personal income that occurs from increasing taxes to pay for the credits is greater than the additional personal income credits generated.

The economic benefit per $1 million spent also varies widely by type of incentive (Table 11). Grants, as well as loan and gap financing programs, have a substantially higher economic benefit per $1 million spent compared to the economic benefits of tax incentives. For every $1 million spent on grants between FY10 and FY17, it is estimated that an additional $15 million in Virginia GDP is added to the Virginia economy. However, only $1 million in Virginia GDP is added to the Virginia economy for every $1 million spent on tax credits, and $1.6 million in Virginia GDP is added for every $1 million spent on sales and use tax exemptions.

Grant programs have higher economic benefits than other types of incentives for two reasons. Economic benefits are higher when awards are made to projects in export-based industries with high economic multipliers that pay above average employee compensation. Nearly half of grant funding was directed to businesses in manufacturing industries, which generally have high economic multipliers and pay higher wages. However, only 21 percent of sales and use tax expenditures, 11 percent of loan and gap financing expenditures, and nine percent of tax credit expenditures are directed to manufacturing businesses. Economic benefits are also higher for programs targeted to businesses that agree to create jobs and capital investment. Businesses that receive grants must agree to create jobs and make capital investments, and usually above minimum levels, but other incentive may not have similar requirements for businesses to receive an award.

Even though loan and gap financing programs have the highest economic benefit per $1 million spent, this is mostly because the cost of these programs to the state is very minimal. For example, costs for the loan assistance programs are limited to loan charge-offs for completed loans, which were estimated to be less than $500,000 total between FY10 and FY17.

Estimates of the economic benefits of grant programs are also more precise and less likely to be underestimated than other programs. More precise estimates of the economic benefit of grant programs can be generated because employment and capital expenditure performance data is readily available. Employment and capital expenditures impacts of businesses that received tax credits and sales and use tax exemptions must be inferred from model simulations and may be slightly underestimated. These simulations produce relatively conservative estimates of program employment and output impacts and could result in slightly more conservative estimates of the economic benefit of these programs.

Appendix A: Study mandate

2018-2020 Appropriation Act
Passed as Chapter 2 of the Acts Assembly, May 20, 2018

§ 1-11 Item 31 F

F.1. The General Assembly hereby designates the Joint Legislative Audit and Review Commission (JLARC) to conduct, on a continuing basis, a review and evaluation of economic development initiatives and policies and to make such special studies and reports as may be requested by the General Assembly, the House Appropriations Committee, or the Senate Finance Committee.

2. The areas of review and evaluation to be conducted by the Commission shall include, but are not limited to, the following: (i) spending on and performance of individual economic development incentives, including grants, tax preferences, and other assistance; (ii) economic benefits to Virginia of total spending on economic development initiatives at least biennially; (iii) effectiveness, value to taxpayers, and economic benefits to Virginia of individual economic development initiatives on a cycle approved by the Commission; and (iv) design, oversight, and accountability of economic development entities, initiatives, and policies as needed.

3. For the purpose of carrying out its duties under this authority and notwithstanding any contrary provision of law, JLARC shall have the legal authority to access the facilities, employees, information, and records, including confidential information, and the public and executive session meetings and records of the board of VEDP, involved in economic development initiatives and policies for the purpose of carrying out such duties in accordance with the established standards, processes, and practices exercised by JLARC pursuant to its statutory authority. Access shall include the right to attend such meetings for the purpose of carrying out such duties. Any non-disclosure agreement that VEDP enters into on or after July 1, 2016, for the provision of confidential and proprietary information to VEDP by a third party shall require that JLARC also be allowed access to such information for the purposes of carrying out its duties.

4. Notwithstanding the provisions of subsection A or B of § 58.1-3 or any other provision of law, unless prohibited by federal law, an agreement with a federal entity, or a court decree, the Tax Commissioner is authorized to provide to JLARC such tax information as may be necessary to conduct oversight of economic development initiatives and policies.

5. The following records shall be excluded from the provisions of the Virginia Freedom of Information Act (§ 2.2-3700 et seq.), and shall not be disclosed by JLARC:

(a) records provided by a public body as defined in § 2.2-3701, Code of Virginia, to JLARC in connection with its oversight of economic development initiatives and policies, where the records would not be subject to disclosure by the public body providing the records. The public body providing the records to JLARC shall identify the specific portion of the records to be protected and the applicable provision of the Freedom of Information Act or other provision of law that excludes the record or portions thereof from mandatory disclosure.

(b) confidential proprietary records provided by private entities pursuant to a promise of confidentiality from JLARC, used by JLARC in connection with its oversight of economic

development initiatives and policies where, if such records are made public, the financial interest of the private entity would be adversely affected.

6. By August 15 of each year, the Secretary of Commerce and Trade shall provide to JLARC all information collected pursuant to § 2.2-206.2, Code of Virginia, in a format and manner specified by JLARC to ensure that the final report to be submitted by the Secretary fulfills the intent of the General Assembly and provides the data and evaluation in a meaningful manner for decision-makers.

7. JLARC shall assist the agencies submitting information to the Secretary of Commerce and Trade pursuant to the provisions of § 2.2-206.2, Code of Virginia, to ensure that the agencies work together to effectively develop standard definitions and measures for the data required to be reported and facilitate the development of appropriate unique project identifiers to be used by the impacted agencies.

8. The Chairman of JLARC may appoint a permanent subcommittee to provide guidance and direction for ongoing review and evaluation activities, subject to the full Commission's supervision and such guidelines as the Commission itself may provide.

9. JLARC may employ on a consulting basis such professional or technical experts as may be reasonably necessary for the Commission to fulfill its responsibilities under this authority.

10. All agencies of the Commonwealth shall cooperate as requested by JLARC in the performance of its duties under this authority.

Appendix B: Research activities and methods

JLARC contracted with the University of Virginia's Weldon Cooper Center for Public Service (Weldon Cooper Center) for this review. Key research activities performed by Weldon Cooper Center for this study included

- data collection and analysis,
- estimation of sales and use tax exemptions,
- economic impact modeling (Appendix H),
- agency staff interviews, and
- review of documents and research.

Data collection and analysis

Weldon Cooper Center collected project data from 13 state agencies that administer Virginia economic development incentive programs. Data was provided for grant, tax credit, and loan or gap financing programs that have made awards. Among the data elements collected for the incentive programs were business identifiers, location, industry type, amount of grant approved and paid, and program performance metrics such as number of jobs created, average wage levels, and capital investment (Table B-1). Some programs, namely the small business loan and tax incentive programs, do not collect performance data or maintain it electronically.

TABLE B-1
Data and information was collected from 13 state agencies on incentive awards

Agencies	Types of information
Center for Innovative Technology	Business identifiers (name, federal tax ID number)
Dept. of Housing and Community Development	Industry
Department of Rail and Public Transportation	Location (locality) of project
Tobacco Region Revitalization Commission	Amount of incentive approved and paid
Virginia Department of Agriculture and Consumer Services	Number of jobs promised and created and timing
Virginia Department of Taxation	Capital investment promised and delivered and timing
Virginia Department of Transportation	Average wages promised and delivered and timing
Virginia Department of Small Business and Supplier Diversity	Other performance metrics as specified
Virginia Economic Development Partnership	
Virginia Film Office	
Virginia Port Authority	
Virginia Small Business Financing Authority	
Virginia Tourism Corporation	

SOURCE: Weldon Cooper Center.

Analysis of grant programs

Grant programs were grouped for analysis purposes based on the date/year when awards were approved rather than paid. The approval date represents when a contract between the agency and the business is signed in the form of a memorandum of understanding or performance agreement. Payment depends on the business meeting performance goals or other program requirements specified in the agreement and availability of program funding. The period before approval and payment varies widely by program because of differing performance period lengths. Some programs make awards upon grant qualification and verification. The most common performance period for Virginia economic incentive programs is three to five years between approval and completion. Customized economic incentive grants, larger business incentives, and infrastructure supporting grants typically have longer performance periods because of the significantly larger size and complexity of the projects.

Program expenditures by fiscal year were computed as the funds paid for completed projects and grant funds still committed toward active but unfinished projects. Some programs report program milestones for the report issued by the Secretary of Commerce and Trade pursuant to § 2.2-206.2 of the Code of Virginia. However, milestone information was sometimes found to be incomplete and quality of reporting varied by agency and program. Thus, it was not used in computing program expenditures.

Grant program awards and amounts were categorized by location and industry using North American Industrial Classification System (NAICS) codes provided by the agency administering the grant or from information available from the Virginia Employment Commission (VEC). Several agencies did not provide NAICS codes. For these programs, project awards were matched with VEC unit-level ES202 records obtained under a confidentiality agreement with VEC. These grant records were matched with VEC records using firm name, address, and when available, taxpayer identification numbers. In many instances, matches could not be found (882 projects and $177 million in total award amount). This problem was most pronounced for the Enterprise Zone Real Property Improvement Grant program, affecting 772 projects or 61 percent of the total projects and $51 million in total awards for the program. In terms of financial impact, the Tobacco Commission Megasite Grant awards were most significant with $106 million in unassigned awards. None of the Megasite projects could be classified into a specific industry since they are made at the industrial-park level rather than at the business level.

Fourteen grant projects for a total award amount of $9.2 million were also not assigned to localities. These projects included 13 Governor's Motion Picture Opportunity Fund awards to companies whose filming activities occurred in multiple locations throughout the state but principally in Central Virginia and one Tobacco Commission Megasite grant program award valued at $3 million.

Grant project records do not systematically include the employment size of businesses receiving awards across programs. Estimation of the employment size of the business that received the grant was conducted by matching grant records with VEC ES202 payroll employment records that corresponded to the year of the award. Many companies have more than one location in Virginia, and only the employment levels for the specific location of the business that qualified for the grant were included in the analysis. Project records for FY10 through FY17 were matched by fiscal year of award with the corresponding VEC employment data by calendar year between 2009 and 2016 (i.e., FY17 project records were matched to calendar year 2016 VEC employment records). Using this process, 63 percent of the total number of awards and 42 percent of the award amounts were accounted for. Since larger establishments were less likely to be represented in the matching process, project awards were weighted to account for the underrepresentation of large awards (and correspondingly large establishments) relative to their occurrence in the grant files to improve the representation of large establishments in the tabulations.

Analysis of loan programs

For the four loan programs—the Economic Development Loan Fund, Loan Guaranty Program, State Cash Collateral Program, and SWaM Loan Fund—there were no state appropriations for the programs for the FY10-FY17 period. These programs are primarily revolving loan funds or secure funding outside the legislative appropriation process, but some have received state appropriations in the past. Since some programs have relied or continue to rely on federal funding, only those projects that could be attributed to previous state funding were included in this analysis. The costs of the programs were estimated to be the actual or projected defaults.

Analysis of tax credits

For quantifying the revenue impact of state economic development-related tax credits, Weldon Cooper Center used corporate and individual tax credit files obtained from the Virginia Department of Taxation. These files list tax credit redemptions by fiscal year of utilization based on when the return was processed. (See Virginia Department of Taxation annual report, Table 3.1: Fiscal Year Tax Credits.)

Incentives excluded from the analysis and report

Several programs did not make awards during the period of analysis (FY10-FY17) and are not included in this report. Four incentive programs have not provided incentive funding because they are relatively new:

- GO Virginia
- Virginia Business Ready Site Program
- Aircraft Parts, Engines, and Supplies Exemption
- Venture Capital Account Subtraction

Two custom grant programs are not included in this report because formal memorandums of understanding have not been filed:

- Advanced Shipbuilding Production Facility Grant Program (Newport News Shipbuilding)
- Pulp, Paper, and Fertilizer Advanced Manufacturing Grant Program

Three grant programs have been active for over a decade but have not yet funded private business projects:

- Tobacco Commission Agribusiness Grant Program
- Southside Economic Development Grant Program
- Tobacco Commission Southwest Economic Development Grant Program

Four grant programs made awards that occurred earlier than FY10:

- Aerospace Engine Manufacturing Performance Grant Program (Rolls-Royce)
- Semiconductor Grant Program (Micron)
- Semiconductor Grant Program (Qimonda)
- SRI custom grant.

Several tax incentives were also not included in this analysis. Information from the Department of Taxation based on individual and corporate tax forms could not be obtained and processed within the time frame for this report. These incentives include

- Data Center Single Sales Factor Apportionment,
- Manufacturing Single Sales Factor Apportionment,
- Qualified Business Long-Term Capital Gain Subtraction, and
- Zero G Zero Tax Act Subtractions (Parts I and II).

This report does not include information on two grant programs that were included in the 2017 report: the Coalfield Regional Opportunity Grant (funding expected to end in 2019) and Virginia Tourism Growth Fund (defunded during the 2017 General Assembly session).

Estimation of business savings from sales and use tax exemptions

Sales and use exemptions provide relief from sales and use taxes on selected taxable goods and services for businesses in targeted industries. Eligible businesses obtain a sales and use exemption certificate from the Department of Taxation (available online) and present it to merchants at the point of sale to claim the exemption. Neither the merchant nor the purchaser is required to report the tax savings to the Department of Taxation outside of an audit process. Therefore, the size of these tax savings to businesses must be estimated by other means.

For quantifying forgone revenue because of sales and use tax exemptions, Weldon Cooper Center relied on Department of Taxation fiscal impact estimates and staff-generated estimates based on IMPLAN and other data sources (Table B-2). Department of Taxation estimates are based on a variety of different approaches, including industry surveys, industry association tallies, and imputations made from secondary data sources such as federal statistical data. Some estimates rely on sales and use tax exemption estimates published as part of detailed tax expenditure studies conducted by the Department of Taxation in the early- and mid-1990s. More recent estimates are sometimes available when the Department of Taxation issues fiscal impact estimates to inform new General Assembly legislation. Weldon Cooper Center estimates were substituted for Department of Taxation estimates in three different situations:

- if the Department of Taxation estimates were based on much older estimates and credible estimates could be generated using more recent data and alternative methods,
- if Department of Taxation estimates were not available for a specific sales and use tax exemption, and
- if an alternative methodology had practical or conceptual advantages over the Department of Taxation estimates.

Weldon Cooper Center estimates for tax revenue rely primarily on IMPLAN data for the state of Virginia. IMPLAN is a commercial economic impact model produced by MIG, Inc. It is based on input-output analysis, which requires estimates of the value of intermediate input purchase for each industry. The intermediate input purchase estimates for Virginia formed the basis of the relevant sales tax base for sales and use tax revenue impact calculations. Spending on durable and leased good inputs is estimated by multiplying industry output by gross absorption coefficients for IMPLAN commodity sectors 3111-3395 and 3442-3446 using the most recent data for 536 industries and commodities. These coefficients represent the input purchases for various commodities per dollar of output. For example, the construction machinery manufacturing industry spent $0.00170 per dollar of output on commodity 362 (Railroad rolling stock). This absorption coefficient was multiplied by the output of the construction machinery equipment industry for 2015 ($122,220,940) to obtain the estimated expenditure on this input ($208,000).

Because the exemptions are sometimes more narrowly targeted than the individual IMPLAN sectors available, supplemental data from EMSI, Virginia Employment Commission, Bureau of Labor Statistics, and Bureau of Transportation Statistics was used to apportion the sector purchases to narrower industry subsets. For example, the airline common carrier exemption is available for air common carriers that provide scheduled service to Virginia airports at least once per week. Eligible purchases were imputed by apportioning IMPLAN input purchase estimates by the percentage of the air transportation industry (NAICS 481) providing scheduled service (NAICS 4811---Scheduled Air Transportation) and apportioning again based on the percentage of scheduled departures performed by airlines that provide service at least once per week based on Bureau of Transportation Statistics T-100 Air Carrier Traffic Segment data.

TABLE B-2
Estimates of business savings from sales and use tax exemptions were based on different methods and sources

Exemption	Sources used to derive estimate
Airline Common Carriers Exemption	IMPLAN, Bureau of Transportation Statistics (BTS), EMSI
Aircraft Parts, Engines, and Supplies Exemption	No estimate generated (becomes effective in FY19)
Certain Printed Materials for Out-of-State Distribution Exemption	TAX (Sales and use tax study 1991)
Contractor Temporary Storage Exemption	TAX (Sales and use tax study 1995)
Data Centers Exemption	TAX estimate, updated by Weldon Cooper Center
Electrostatic Duplicators Exemption	IMPLAN, EMSI
Film, Television, & Audio Production Inputs Exemption	IMPLAN, EMSI
Media Provider Equipment Exemption	TAX estimate (updated) for legislative proposal
Out-of-State Nuclear Facility Repair Exemption	IMPLAN, VEC, EMSI
Pollution Control Equipment & Facilities Exemption	TAX fiscal impact, HB1488 (2004)
Railroad Common Carriers Exemption	IMPLAN
Railroad Rolling Stock Exemption	IMPLAN
Research & Development Exemption	TAX estimate, updated by Weldon Cooper Center
Semiconductor Manufacturers Exemption	IMPLAN, Bureau of Labor Statistics
Semiconductor Wafers Exemption	IMPLAN
Ships and Vessels Exemption	IMPLAN
Taxi Parts & Radios Exemption	TAX fiscal impact, HB1488 (2004)
Uniform Rental & Laundry Businesses Exemption	IMPLAN, EMSI
Virginia Spaceport Users Exemption	TAX fiscal impact, HB1488 (2004)

SOURCE: Weldon Cooper Center.

The sectors targeted vary by sales and use tax exemption, as do the categories of purchases that are eligible for exemption. Generally speaking, tangible personal property purchases and leases are covered though the specific items sometimes differ. For instance, the railroad rolling stock exemption allows Virginia manufacturing firms an exemption on purchases of rolling stock. The tax base is determined by aggregating purchases of rolling stock across all Virginia manufacturing industries.

Other adjustments are needed to convert calendar years to fiscal years. IMPLAN purchases are expressed in terms of calendar years; thus fiscal year estimates were calculated by averaging two calendar years (e.g., FY12 is the average of CY11 and CY12). The last calendar year of data available from IMPLAN is 2016. Therefore, FY17 revenue estimates were calculated by inflating the FY16 estimates by the CPI consumer price index.

Agency interviews

In 2017, Weldon Cooper Center and JLARC staff conducted structured interviews with state agency staff that administered and/or provided research support for economic development incentive programs. The interviewees included representatives of each of the 13 agencies that administer grants, loans, and gap financing and several staff from the Department of Taxation. Topics included the purpose of each program, criteria used in selecting award recipients and amounts, and data availability and quality for tracking program performance. Additional interviews are only performed as needed, such as when new incentive programs are adopted or programs are substantially changed.

Review of documents and research

Weldon Cooper Center reviewed several sources of information, including documents, reports, and published or unpublished research. The purpose of this literature review was to understand the purpose and goals of Virginia economic development incentive programs, determine the best approach to quantify the revenue impacts of sales and use tax exemptions, and develop an approach for performance evaluation that draws on best practices from other states. Sources consulted included

- Virginia agency documents that describe economic development incentive program purpose, application requirements, award criteria, and other features;
- Virginia Legislative Information System documents describing grant and sales and use exemption statutes and Department of Taxation fiscal impact estimates;
- State economic development performance evaluations published by state agencies or their consultants in Virginia and other states.

Appendix C: Incentive program descriptions

Seventy-eight economic development incentive programs are subject to this review. These include 32 grant programs, 15 tax credits, 19 tax exemptions, and 12 other programs.

Grant programs

Thirteen state agencies administer 32 economic development incentive grant programs. These programs reflect a variety of economic development goals and often target different activities including development in disadvantaged regions (Tobacco Region Opportunity Fund and Enterprise Zone grants), transportation enhancements for business expansion and recruitment (Economic Development Access Program and Rail Industrial Access Program grants), and small business development (Small Business Investment Grant Fund and Small Business Jobs Grant Fund Program).

Programs also target particular industries such as agriculture and forestry (Agriculture and Forestry Industries Development Grant), corporate headquarters (Virginia Economic Development Incentive Grant), motion picture production (Governor's Motion Picture Opportunity Fund), and port-related industries (Port of Virginia Economic and Infrastructure Grant).

The state has also created customized grants for individual large industrial attraction and expansion projects such as Newport News Shipbuilding (Advanced Shipbuilding Training Facility Grant Program and Advanced Shipbuilding Production Facility Grant Program), and Rolls-Royce Corporation (Aerospace Engine Manufacturing Performance Grant Program). The Major Eligible Employer Grant program likewise targets large expansions; so far both Booz Allen Hamilton and Philip Morris have received awards for expanding their state footprints.

Over 80 percent of total economic incentive grants over the FY10 to FY17 period were administered by two state agencies, the Virginia Economic Development Partnership and Tobacco Region Revitalization Commission. The Department of Housing and Community Development and Department of Transportation also awarded large portions of total grant awards at 13 percent and eight percent of the total, respectively.

TABLE C-1
Thirty-four incentive grant programs are administered by 13 state agencies

State agency/program	Purpose	Description
Center for Innovative Technology		
Commonwealth Research Commercialization Fund	Promote high technology economic development through commercialization of promising research and development.	Grants are made on the basis of scientific merit and economic development potential for technology at the proof-of-concept stage or earlier in targeted high-technology industries. Funds must be matched by recipient.

State agency/program	Purpose	Description
Department of Agriculture and Consumer Services		
Agriculture and Forestry Industries Development Grant	Attract new and expanding agriculture and forestry processing value-added facilities that use Virginia-grown products.	Eligible projects must produce value added agricultural or forestry products that derive at least 30% of agricultural or forestry product inputs from Virginia. Incentive grant requests are made by the host political jurisdiction and must be locally matched.
Department of Small Business and Supplier Diversity		
Small Business Jobs Grant Fund Program	Support small business job creation and investment.	Grants are made to small businesses in targeted sectors that create at least five full-time positions paying at least 1.35 times the federal minimum wage and making a capital investment of at least $100,000 within two years. Funding ($500- $2,000) per job is based on job characteristics.
Department of Housing and Community Development		
Job Creation Grant (Enterprise Zone)	Encourage job creation in distressed communities designated as enterprise zones.	Grants are awarded to qualified businesses that create at least four permanent full-time jobs in an enterprise zone. Qualifying jobs must pay at least 1.75 times the federal minimum wage (lowered to 1.5 times for high unemployment areas) and offer health benefits.
Real Property Improvement Grant (Enterprise Zone)	Encourage private investment in distressed communities designated as enterprise zones.	Grants are awarded to investors making qualified investments in industrial, commercial, or mixed-use real property in an enterprise zone. The grant is computed as 20% of the investment amount minus a base investment with a project cap of $200,000.
GO Virginia (Virginia Growth and Opportunity Fund Grants)	Promote private sector business and employment growth through regional cooperation.	The new grant includes FY18 funds allocated to regions on the basis of population and competitive grant funds. Performance parameters of grants are still being developed.
Department of Rail and Public Transportation		
Rail Industrial Access Program	Encourage construction, reconstruction, or improvement of railroad tracks serving new or expanding industrial sites and divert truck traffic to the freight rail network.	The grant is available to businesses that seek access to a common carrier railroad. Funding is limited to 15% of the business capital investment with a cap of $450,000. The program evaluates applicants using a project scoring system.
Department of Transportation		
Economic Development Access Program	Encourage construction, improvement, or maintenance of roads serving new or expanding industrial sites.	The grant is made in support of road enhanced access for basic employers that export at least half of output outside state. Award amount is based on value of capital investment by qualifying companies who locate at the economic development site.
Transportation Partnership Opportunity Fund	Improve transportation access for business development projects.	Grants of up to $5 million are available to companies that develop transportation facilities such as on and off site road, rail, mass transit or other transportation access improvements. Projects must meet Commonwealth's Opportunity Fund or Virginia Investment Partnership Grant program criteria.

State agency/program	Purpose	Description
Small Business Financing Authority		
Small Business Investment Grant Fund	Assist small businesses obtain investment capital.	Grant for equity or subordinated debt investment in eligible small business. Grant amount equals 10% of qualified investments made in small businesses not to exceed $250,000 per investor.
Tobacco Region Revitalization Commission		
Agribusiness Grant	Promote agricultural and agribusiness growth, development and diversification in the tobacco region in order to help the agricultural industry pursue market opportunities and reduce dependence on tobacco and tobacco-related business.	Awards are made to projects likely to generate new income and investment and align with targeted categories such as applied research and education, product processing, livestock and crop demonstration, local foods, multi-purpose agriculture centers, and wholesale/retail cooperatives.
Megasite Grant	Develop large, business-ready and publicly owned industrial sites across the tobacco region to attract major employer and investment projects.	Megasite funding is only available for the eight sites that have been developed to date with Tobacco Commission support. Megasite projects are defined as those that create at least 400 jobs and $250 million in private investment.
Southside Economic Development Grant	Promote economic development in the Southside localities of the Tobacco Region.	Funds are allocated by locality. Awards fall into strategic funding categories identified as important for economic development including infrastructure improvements, workforce training, regional tourism, building industry clusters, and entrepreneurial development.
Southwest Economic Development Grant	Promote economic development in the Southwest localities of the Tobacco Region.	Awards fall into strategic funding categories identified as important for economic development including infrastructure improvements, workforce training, regional tourism, building industry clusters, and entrepreneurial development.
Tobacco Region Opportunity Fund	Attract new jobs and investments for the Tobacco Region through business attraction and expansion.	Grant requests are initiated by the host community. Grant criteria include a minimum private capital investment of $1 million and 10 jobs created within 36 months. Applications are evaluated using a ROI model with award amounts based on that analysis.
Virginia Economic Development Partnership		
Advanced Shipbuilding Training Facility Grant Program (Newport News)	Promote the expansion of advanced shipbuilding in Virginia. This customized performance-based grant is used to support the growth of Newport News Shipbuilding in Newport News City.	Incentive payments are based on attainment of performance milestones specified in a performance agreement between the state and the company. Performance measures include employment, capital investment, and training expenditures.

State agency/program	Purpose	Description
Advanced Shipbuilding Production Facility Grant Program (Newport News)	Promote the expansion of advanced shipbuilding in Virginia. This customized performance-based grant is used to support the expansion of Newport News Shipbuilding in Newport News City.	Incentive payments are based on attainment of performance milestones specified in a performance agreement between the state and the company. Performance measures include employment and capital investment.
Aerospace Engine Manufacturing Performance Grant Program (Rolls-Royce)	Attract an aerospace engine manufacturer to locate in Virginia. This customized performance-based grant is used to support the growth of the recently established Rolls-Royce turbine plant in Prince George county and industry cluster firms.	Incentive payments are based on attainment of performance milestones specified in a performance agreement between the state and the company. Performance measures include employment, capital investment, and number of trainees.
Business Ready Site Program	Encourage the development of sites and associated infrastructure for industrial and commercial uses as tools for business attraction, retention, and expansion.	Incentive grants consist of two types. Site characterization grants fund site needs assessment. Site development grants fund site development costs. Eligible sites must have at least 100 contiguous, developable acres and meet additional criteria.
Commonwealth's Opportunity Fund	Attract new businesses and support existing business expansion.	Grant program is discretionary deal closing fund for firms exporting at least half of output outside state. Funds must be matched by host locality and are used for site acquisition and improvement, infrastructure, building construction, and employee training.
Major Eligible Employer Grant	Attract new or expanding large employers to the state	The grant is targeted to major employers that make a capital investment of at least $100 million and create at least 1,000 jobs. This job threshold is reduced if high-paying jobs are created. The grant amount per job ranges from $500 to $800.
Pulp, Paper, and Fertilizer Advanced Manufacturing Grant Program	Promote the expansion of pulp, paper, and fertilizer advanced manufacturing advanced shipbuilding in Virginia. This customized performance-based grant is used to support the location and expansion of Shandong Tranlin, Inc. in Chesterfield County.	Incentive payments are based on attainment of performance milestones specified in a performance agreement between the state and the company. Performance measures include employment and capital investment. To date, no performance agreement has been executed for this program.
Semiconductor Custom Grant (Micron)--Semiconductor Memory or Logic Wafer Manufacturing Performance Grant	Promote and expand semiconductor product manufacturing. This customized performance-based grant was a used to support the expansion of Micron in Manassas.	Incentive payments are based on attainment of performance milestones specified in a performance agreement between the state and the company. Performance measures include employment and capital investment.

State agency/program	Purpose	Description
Semiconductor Custom Grant (Qimonda)--Semiconductor Memory or Logic Wafer Manufacturing Performance Grant	Promote and expand semiconductor product manufacturing. This customized performance-based grant was used to support the attraction of now defunct Qimonda semiconductor plant in Henrico County.	Incentive payments are based on attainment of performance milestones specified in a performance agreement between the state and the company. Performance measures include employment and capital investment.
SRI custom grant	Promote public-private R&D and commercialization activities to facilitate economic growth. This customized grant is used to support SRI Shenandoah Valley in the establishment of the Center for Advanced Drug Research in Rockingham County.	Incentive payments are based on attainment of performance milestones specified in a performance agreement between the state and the company. Performance measures include employment and capital investment.
Virginia Economic Development Incentive Grant	Encourage the location of significant headquarters, administrative, research and development, and basic service companies.	Grants are awarded to eligible companies based on ROI analysis, subject to the Governor's approval. Companies must agree to create a minimum number of jobs (200-400) that pay 1.5 times the local prevailing average wage and make a capital investment of $6,500 per job or more.
Virginia Investment Partnership Grant	Encourage Virginia manufacturer retention and expansion though new capital investment and R&D.	Grant is targeted to manufacturers that have operated in the state for at least 3 years, will make a capital investment of at least $25 million, and face high risk of relocating elsewhere. New job creation is not required, but current employment levels must be maintained.
Virginia Jobs Investment Program	Support private business job creation and worker training and retraining.	Grants are awarded for creating new jobs or upgrading skills for existing workers. Job creation awardees must create at least 25 new jobs and make a capital investment of at least $1 million (or 5 new jobs and $100,000 capital investment if a small business.) Retraining awardees must retrain 10 full-time workers and make a capital investment of $500,000 (or 5 full-time workers and $100,000 capital investment if a small business).
Virginia Leaders in Export Trade (VALET) Program	Assist companies to expand their markets and encourage the export of products and services to international markets.	The VALET program provides technical assistance, training, and reimbursement for approved expenses to assist eligible businesses develop international export markets. Reimbursement is up to $15,000 per company for approved export-related expenses. Awardees must complete a two-year program.
Virginia Trade Show Assistance Program	Assist companies to expand their markets and encourage the export of products and services to international markets.	The grant reimburses company trade show attendees for up to $10,000 of the cost of trade exhibits.

State agency/program	Purpose	Description
Virginia Film Office		
Governor's Motion Picture Opportunity Fund	Support growth of the film and television industries in Virginia.	Grants are awarded to production companies that film in Virginia. Awards are made on a discretionary basis considering project expenditures in Virginia, employment, presence of any local commitment, geographic diversity, and industry or company growth potential in Virginia.
Virginia Port Authority		
Port of Virginia Economic and Infrastructure Grant	Encourage maritime companies to locate or expand to promote the growth of the Port of Virginia.	Grants are awarded to companies in maritime industries that create at least 25 permanent full-time jobs and are involved in maritime commerce or import/export industry. The award per job is scaled to the number of jobs created.

Tax credits

Fifteen economic development tax credits are available to eligible applicants when filing income tax forms. The state offers three types of credits: transferable, refundable, and non-refundable and non-transferable. Most economic development tax incentives in this report are the latter two types. In most cases, non-refundable and non-transferable tax credits can be credited against a company's tax liability over a designated "carryover" period. For these programs, carryover periods vary from a low of three years to a high of 15 years. Two of the economic development tax credit programs offer refundable credits: Motion Picture Production Tax Credit and Research and Development Expenses Tax Credit. A refundable tax credit allows taxpayers to be reimbursed by the difference between the credit amount and tax liability.

TABLE C-2
Fifteen economic development tax credits are available through the state corporate and individual income tax

Program	Purpose	Description
Barge and Rail Usage Tax Credit	Encourage use of rail and waterway transportation and decrease Virginia road congestion.	Tax credit for facilities engaged in port-related activities utilizing barge and rail rather than motor transportation. Credit is awarded on basis of amount of increased cargo shipped by barge and rail over previous tax year.
Biodiesel and Green Diesel Fuels Producers Tax Credit	Promote biodiesel and green diesel production.	Tax credit for biodiesel and green diesel fuel producers making up to two million gallons of fuel per year. The credit amount is $0.01 per gallon, but cannot exceed $5,000 per year.
Farm Wineries and Vineyards Tax Credit	Promote the growth of the Virginia wine industry.	Tax credit for eligible vineyards and winery qualified expenditures such as equipment and supplies used in winemaking. Credit is 25% of all qualified expenditures.
Green Job Creation Tax Credit	Promote creation of jobs in renewable and alternative energy industries.	Tax credit for creating green jobs during the taxable year. The credit amount is $500 per green full-time job created that pays at least $50,000 per year in wages.
International Trade Facility Tax Credit	Encourage port-related economic activity by increasing capital investment or new hiring connected to international trade facilities.	Tax credit for international trade facilities that show at least 5% increase in Virginia port shipments. Employee credit is equal to $3,500 per job. Capital investment credit is equal to 2 percent of capital investment.
Major Business Facility Job Tax Credit	Promote growth of company headquarters; manufacturing, agricultural, and transportation businesses; and export-oriented service industries such as legal and financial services. Retail industries are excluded.	Tax credit of $1,000 per job for creation of new, full-time jobs in excess of threshold of 50 jobs or 25 jobs for enterprise zone/economically distressed areas.
Major Research and Development Expenses Tax Credit	Promote research and development activities.	Tax credit for qualified R&D expenses greater than $5 million. Credit is based on difference between R&D expenses during taxable year and 50% of the average expenses incurred during previous 3 years.

Program	Purpose	Description
Motion Picture Production Tax Credit	Encourage motion picture production and use of Virginia resident labor and merchants in production	Tax credit for qualifying expenses of eligible productions that complete a motion picture. Tax credit is equal to 15% of qualifying expenses, with bonus rates for Virginia resident payroll and production in economically distressed areas.
Qualified Equity and Subordinated Debt Investments Tax Credit	Encourage investment in high-tech small business ventures.	Tax credit for equity or subordinated debt investment in qualified small businesses engaged in technology-related fields. Credit amount is equal to 50% of qualified investments during the taxable year but may not exceed tax liability or $50,000.
Recyclable Materials Processing Equipment Tax Credit	Encourage recycling of waste and pollution control.	Tax credit for qualifying purchases of equipment to produce items from recyclable materials. Credit is equal to 20% of the purchase price of the recycling equipment. The allowable credit cannot exceed 40% of tax liability.
Research and Development Expenses Tax Credit	Promote research and development activities.	Tax credit for qualified R&D expenses. Credit is equal to 15% of first $300,000 of expenses or 20% if conducted with Virginia higher education. Alternatively, credit may be computed as 10% of difference of expenses and 50% of previous 3 year average.
Telework Expenses Tax Credit	Encourage telework to ease road congestion.	Tax credit for eligible expenses incurred for permitting employees to telework. Credit is equal to up to $1,200 per teleworking employee or $20,000 for conducting a telework assessment. Maximum credit is $50,00 per calendar year.
Virginia Coal Production and Employment Incentive Tax Credit	Encourage use of Virginia coal by Virginia power generators to increase Virginia coal production and employment.	Tax credit for Virginia coal that is both purchased and consumed by Virginia electricity generator. Credit is equal to $3-per-ton.
Virginia Port Volume Increase Tax Credit	Promote use of state port facilities.	Tax credit for qualified agricultural, manufacturing, or mining entities that use Virginia port facilities and increase cargo volume by at least 5%. Credit is $50 per twenty-foot equivalent unit.
Worker Retraining Tax Credit	Encourage worker retraining to improve productivity and employment retention.	Tax credit for training costs of providing eligible worker retraining for qualified employees. The retraining must occur with a pre-designated program such as a noncredit course or apprenticeship. Tax credit is up to 30% of qualified training costs. Modified in 2018 to allow manufacturers that conduct qualifying orientation, instruction, or other programs to claim a credit equal to 35% of the direct cost of the program not to exceed $2,000 for any year.

Sales and use tax exemptions

Nineteen sales and use tax exemptions reduce taxes for eligible firms that purchase or lease selected tangible personal property. Sales and use tax exemptions are realized at the point of sale when eligible items are purchased. Eligible firms must complete Department of Taxation forms (Commonwealth of Virginia Sales and Use Tax Certificate of Exemption) and present them to merchants at time of sale.

TABLE C-3
Nineteen sales and use tax exemptions reduce taxes at point of sale

Exemption	Purpose	Description
Airline Common Carriers Exemption	Encourage commercial airline service to and from Virginia airports.	Tax exemption for tangible personal property sold or leased to an airline operating in intrastate, interstate or foreign commerce as a common carrier. The airline must provide scheduled air service on a continuing basis to one or more Virginia airports at least one day per week.
Aircraft Parts, Engines, and Supplies Exemption	Encourage growth of aviation sector, including unscheduled common carriers, private planes, and unmanned aviation systems.	Tax exemption for parts, engines, and supplies used for maintaining, repairing, or reconditioning aircraft.
Certain Printed Materials for Out-of-State Distribution Exemption	Encourage out-of-state business purchases of printing materials from state firms.	Tax exemption for catalogs, letters, brochures, reports, and similar printed materials, and paper furnished to a printer for fabrication into such printed materials, when stored for 12 months or less in the Virginia and distributed outside the state.
Contractor Temporary Storage Exemption	Promote competitiveness of state construction material supply firms.	Tax exemption for personal property purchased by a contractor for use solely in another state or in a foreign country and temporarily stored in Virginia pending shipment, if such property could be similarly purchased free from sales tax in such other state or foreign country.
Data Centers Exemption	Promote the establishment of large-scale data centers.	Tax exemption for Virginia data centers and tenants meeting certain minimal investment, employment, and wage-level criteria. Exemption is for processing, storage, retrieval, and communication equipment.
Electrostatic Duplicators Exemption	Promote small-scale printing businesses by providing exemption comparable to industrial printers.	Tax exemption for high speed electrostatic duplicators or any other duplicators having a printing capacity of 4,000 impressions or more per hour purchased or leased by persons engaged primarily in the printing or photocopying of products for sale or resale.
Film, Television, & Audio Production Inputs Exemption	Promote motion picture production and sound recording industries.	Tax exemption for audiovisual works acquired for licensing, distributing, broadcasting, commercially exhibiting or reproducing or production services or fabrication connected with such production. The exemption applies to purchases and leasing of tangible personal property.
Media Provider Equipment Exemption	Promote radio and television broadcasting, cable television, and broadband media industries.	Tax exemption for broadcasting equipment, parts and accessories used by radio, television, cable, and broadband media companies. The exemption also applies to amplification, transmission, and distribution equipment used by cable television systems or other video systems.

Exemption	Purpose	Description
Out-of-State Nuclear Facility Repair Exemption	Promote nuclear maintenance and repair industry by exempting purchases of supplies used for the purpose of providing services to out-of-state buyers.	Tax exemption for tangible personal property purchased for use or consumption in the performance of maintenance and repair services at Nuclear Regulatory Commission-licensed nuclear power plants located outside the state.
Pollution Control Equipment & Facilities Exemption	Encourage business adoption of pollution control equipment and technologies by reducing capital costs.	Tax exemption for pollution control equipment and facilities used for air and water pollution abatement certified by a state certifying authority.
Railroad Common Carriers Exemption	Promote maintenance and expansion of state railroads.	Tax exemption for tangible personal property sold or leased to a public service corporation that is a common carrier of property or passengers by railway.
Railroad Rolling Stock Exemption	Encourage capital investment in railroad rolling stock.	Tax exemption for railroad rolling stock when sold or leased by the manufacturer.
Research & Development Exemption	Encourage research and development of new and improved products and processes.	Tax exemption for tangible personal property purchased for use or consumption directly and exclusively in basic research or research and development in the experimental or laboratory sense.
Semiconductor Manufacturers Exemption	Promote semiconductor manufacturing industry.	Tax exemption for semiconductor cleanrooms or equipment, fuel, and supplies used in the process of designing, developing, manufacturing, or testing semiconductor products or equipment.
Semiconductor Wafers Exemption	Promote semiconductor manufacturing industry.	Tax exemption for semiconductor wafers for use or consumption by a semiconductor manufacturer.
Ships and Vessels Exemption	Promote maritime shipping industries, including commercial ship building, repairing, supplying, and dredging.	Tax exemption for ships or vessels used or to be used exclusively or principally in interstate or foreign commerce. The tax exemption also applies to fuel and supplies for use or consumption aboard ships or vessels plying the high seas, either in intercoastal trade or in foreign commerce.
Taxi Parts & Radios Exemption	Encourage commercial taxi operations and prevent their further decline.	Tax exemption for parts, tires, meters, and dispatch radios sold or leased to taxicab operators for use in their services.
Uniform Rental & Laundry Businesses Exemption	Promote the commercial uniform rental industry by providing a tax exemption similar to other industrial manufacturers and processors.	Tax exemption for machinery and tools, supplies and materials used directly in maintaining and preparing textile products for renting or leasing by an industrial processor engaged in commercial leasing or renting of laundered textile products.
Virginia Spaceport Users Exemption	Promote spaceport operations at facilities owned, leased, or operated by the state and the commercial space industry.	Tax exemption for space facilities and hardware, including inputs, components and supplies such as special fuels, machinery and equipment, and other goods and services for activities undertaken at a Virginia Commercial Space Flight Authority facility.

Other incentive programs

Eleven other incentive programs included in this report fall into a "miscellaneous" category that includes tax preferences such as corporate income tax apportionment methods and income tax subtractions as well as gap and loan financing programs that are difficult to classify elsewhere. The latter programs are administered by the Virginia Small Business Financing Authority and the Center for Innovative Technology and are designed to provide alternative funding sources for business startups and established small businesses that face financing constraints.

TABLE C-4
Twelve other loan, gap financing, and tax incentives target economic development

Program	Purpose	Description
CIT Gap Fund	Promote expansion of early stage high-science and technology companies in targeted fields with rapid growth potential.	Seed-stage equity investments in Virginia-based technology, green technology, and life science companies with a high growth potential. The Center for Innovative Technology holds an ownership position in the company while the company grows operations and value.
Data Center Single Sales Factor Apportionment	Promote the establishment and growth of data centers.	This tax rule allows eligible multistate corporations that make a capital investment of at least $150 million in a data center to use the single sales factor method of apportionment to reduce tax liability. Companies that choose to use this apportionment method must enter into a MOU with VEDP.
Economic Development Loan Fund	Promote small business job creation and retention by providing gap financing.	Loans are targeted to small businesses in technology, tourism, manufacturing, and services that generate a majority of sales outside the state. Project must create permanent full-time jobs that pay a minimum of $10 per hour. Maximum loan available is 40% or $1 million, whichever is less.
Loan Guaranty Program	Promote small business capital investment.	This program assists small businesses obtain loans by reducing bank credit risk. The maximum guarantee is the lessor of $750,000 or 75% of the loan amount. The program does not have job creation requirements but considers job creation in financing decisions.
State Cash Collateral Program	Promote small business capital investment.	This program assists small businesses obtain loans by reducing bank credit risk. The maximum guarantee is the lessor of $500,000 or 40% of the loan amount. The program does not have job creation requirements but considers job creation in financing decisions.
Manufacturing Single Sales Factor Apportionment	Promote manufacturing employment growth.	This tax rule allows manufacturing companies to choose single sales factor apportionment to reduce tax liability. Companies must certify that full-time employee average wages are above the state industry average and that employment is at least 90 percent of base year employment for three years.
Qualified Business Long-Term Capital Gain Subtraction	Promote high technology business investment.	Tax subtraction for income attributable to an investment in certain high technology businesses that is taxed as long-term capital gain. Qualified businesses must have gross revenues of less than $3 million and received less than $3 million in equity or debt investments.

Program	Purpose	Description
SWaM Loan Fund	Promote small, women-owned, and minority-owned business capital investment and expansion.	This fund provides a maximum of $10,000 to eligible businesses, or $25,000 if business received counseling from a Small Business Development center. Loans are allocated on a credit score basis. Loans may be used for working capital, financing accounts receivable and inventory, and other purposes.
Tourism Development Financing Program	Promote tourism and economic development in Virginia.	The program provides gap financing for tourism development projects otherwise unable to access capital. The locality must make application, demonstrate a tourism deficiency, and provide tax incentives or regulatory flexibility for a designated tourism zone where the project occurs.
Venture Capital Account Subtraction	Promote investment in early stage companies in Virginia.	Income tax subtraction on certain income attributable to an investment in a Virginia venture capital account, defined as an investment fund that (i) invests at least 50 percent of its funds invested during the year in which the taxpayer claims a subtraction, or any of the previous five years, in qualified portfolio companies and (ii) employs at least one investor who has either at least four years of professional experience in venture capital investment or substantially equivalent experience.
Zero G Zero Tax Act (Part I) Subtraction	Encourage the location and expansion of companies at a Virginia airport or spaceport involved in flying or training humans in suborbital flight.	Tax deduction for gains realized from the sale of launch services to space flight participants or launch services intended to provide individuals the training or experience of a launch, without performing an actual launch.
Zero G Zero Tax Act (Part II) Subtraction	Encourage the location and expansion of companies at a Virginia spaceport involved in resupplying the space station.	Tax deduction for gains realized from resupply services contracts for delivering payload entered into with the Commercial Orbital Transportation Services division of the National Aeronautics and Space Administration or other space flight entity.

NOTE: Virginia also has a mandatory single sales factor apportionment method for retailers. This report only includes those special apportionment methods that are optional.

Appendix D: Spending or tax expenditure by incentive

TABLE D-1
State spending on incentive grant payments ($ millions)

Incentive	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	Total
Advanced Shipbuilding Training Facility Grant Program	--	32.8	0.0	0.0	0.0	0.0	0.0		$32.8M
Advanced Shipbuilding Production Facility Grant Program	--	--	--	--	--	--	--		0.0
Aerospace Engine Manufacturing Performance Grant Program	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tobacco Commission Agribusiness Grant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agriculture and Forestry Industries Development Grant	--	--	--	--	1.3	0.5	1.1	1.8	4.8
Virginia Business Ready Site Program	--	--	--	--	--	--	--	0.0	0.0
Commonwealth's Opportunity Fund	3.2	8.8	11.5	8.2	9.1	24.6	28.1	17.7	111.2
Commonwealth Research Commercialization Fund	--	--	1.8	2.5	0.9	0.9	1.4	1.2	8.6
Economic Development Access Program	2.0	3.2	3.4	1.1	2.7	1.3	1.0	3.8	18.5
GO Virginia	--	--	--	--	--	--	--	0.00	0.0
Governor's Motion Picture Opportunity Fund	0.3	2.1	2.4	0.6	1.7	2.9	12.1	1.4	23.6
Job Creation Grant (Enterprise Zone)	1.3	2.7	3.0	2.9	2.9	3.1	2.7	1.8	20.4
Major Eligible Employer Grant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tobacco Commission Megasite Grant	--	25.0	27.4	21.0	12.8	6.3	9.0	3.0	104.4
Port of Virginia Economic and Infrastructure Grant	--	--	--	--	0.5	0.0	0.3	2.2	3.0
Pulp, Paper, and Fertilizer Advanced Manufacturing Grant Program	--	--	--	--	--	--	--	--	0.0
Rail Industrial Access Program	0.9	2.0	1.2	0.5	2.1	0.3	1.1	0.0	8.2
Real Property Improvement Grant (Enterprise Zone)	10.6	9.5	11.2	11.2	11.3	9.1	9.3	10.9	83.1
Semiconductor Custom Grant (Micron)	--	--	--	--	--	--	--	--	0.0
Semiconductor Custom Grant (Qimonda)	--	--	--	--	--	--	--	--	0.0

Incentive	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	Total
Small Business Investment Grant Fund	--	--	--	--	0.0	0.1	0.2	1.1	1.4
Small Business Jobs Grant Fund	0.0	0.2	0.4	1.1	1.9	0.3	0.0	0.7	4.7
Southside Economic Development Grant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Southwest Economic Development Grant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SRI custom grant	--	--	--	--	--	--	--	--	0.0
Tobacco Region Opportunity Fund	8.8	13.8	9.8	17.4	27.5	6.3	10.8	3.6	98.0
Transportation Partnership Opportunity Fund	0.0	3.3	15.0	15.2	0.7	6.0	3.0	0.0	43.2
Virginia Economic Development Incentive Grant	0.0	10.0	5.0	0.0	5.0	6.0	0.0	9.3	35.3
Virginia Investment Partnership Grant	1.1	3.3	2.3	14.2	3.3	10.3	6.7	1.6	42.6
Virginia Jobs Investment Program	6.7	8.1	8.4	5.9	8.0	6.3	12.0	12.4	67.7
VALET program	0.1	0.3	0.3	0.3	0.3	0.3	0.4	0.7	2.7
Virginia Tourism Growth Fund	--	--	--	--	--	--	--	0.59	0.6
Virginia Trade Show Assistance Program	--	--	--	--	--	--	--		0.0

SOURCE: Weldon Cooper Center analysis of economic development incentives.
NOTE: Adjusted for canceled projects, recaptures, and award reductions. Not adjusted for inflation. Numbers may not add due to rounding.
-- indicates no awards were made by the program in that year, either because they had not been adopted yet or because it was a custom grant that only made a one-time award.

TABLE D-2
Tax savings to businesses because of tax credits ($ millions)

Incentive	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	Total
Barge and Rail Usage Tax Credit	0.00	0.00	0.00	0.00	0.01	0.04	0.57	0.00	$0.6M
Biodiesel and Green Diesel Fuels Producers Tax Credit	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Farm Wineries and Vineyards Tax Credit	0.00	0.00	0.00	0.10	0.19	0.18	0.18	0.14	0.8
Green Job Creation Tax Credit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
International Trade Facility Tax Credit	0.00	0.00	0.00	0.17	0.16	0.15	0.26	0.32	1.0
Major Business Facility Job Tax Credit	3.17	-0.86	4.30	2.77	1.31	4.11	0.77	6.77	22.3
Major Research and Development Tax Credit	--	--	--	--	--	--	--	--	0.0
Motion Picture Production Tax Credit	0.00	0.00	0.00	0.00	2.95	7.18	5.49	6.59	22.2
Qualified Equity and Subordinated Debt Investment Tax Credit	1.86	1.62	2.06	1.93	2.36	2.10	2.38	2.18	16.5
Recyclable Materials Processing Equipment Tax Credit	1.21	0.60	0.66	2.71	1.15	0.62	2.10	1.66	10.7
Research and Development Expenses Tax Credit	0.00	0.00	0.00	1.48	3.41	4.21	4.67	4.24	18.0
Telework Expenses Tax Credit	--	0.00	0.00	0.00	0.05	0.11	0.06	0.01	0.2
Virginia Coal Production and Employment Incentive Tax Credit	0.39	0.00	0.00	59.45	6.71	8.91	3.13	3.71	82.3
Virginia Port Volume Increase Tax Credit	0.00	0.00	0.00	0.11	0.36	0.74	0.88	2.23	4.3
Worker Retraining Tax Credit	0.03	0.17	0.18	0.13	0.16	0.16	0.23	0.23	1.3

SOURCE: Weldon Cooper Center analysis of the Department of Taxation's Annual Reports for Fiscal Years 2010-2017.
NOTE: Credits were claimed for the Biodiesel and Green Diesel Fuels Producers Tax Credit, but amounts were very minimal. Not adjusted for inflation. Numbers may not add due to rounding.
-- indicates no credits were claimed in that year because they had not been adopted yet.

TABLE D-3
Estimated tax savings to businesses on sales and use tax exemptions ($ millions)

Incentive	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	Total
Airline Common Carriers Exemption	11.96	7.09	6.67	7.76	8.63	10.72	11.55	11.77	$76.1M
Aircraft Parts, Engines, and Supplies Exemption	--	--	--	--	--	--	--	--	0.0
Certain Printed Materials for Out-of-State Distribution Exemption	3.37	3.49	3.59	3.66	3.99	4.02	4.05	4.12	30.3
Contractor Temporary Storage Exemption	0.09	0.09	0.09	0.10	0.10	0.11	0.11	0.11	0.8
Data Centers Exemption	0.00	8.40	15.20	31.50	47.00	56.40	59.50	66.90	284.9
Electrostatic Duplicators Exemption	0.02	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.1
Film, Television, & Audio Production Inputs Exemption	0.93	1.08	1.13	0.83	0.65	0.79	0.88	0.89	7.2
Media Provider Equipment Exemption	3.75	3.88	4.00	4.06	4.44	4.47	4.50	4.58	33.7
Out-of-State Nuclear Facility Repair Exemption	0.44	0.38	0.34	0.41	0.51	0.57	0.60	0.61	3.9
Pollution Control Equipment & Facilities Exemption	2.98	3.09	3.18	3.23	3.53	3.55	3.58	3.64	26.8
Railroad Common Carriers Exemption	15.93	17.36	21.01	21.30	24.60	25.69	24.17	24.62	174.7
Railroad Rolling Stock Exemption	1.33	1.76	2.05	1.85	2.99	5.33	6.06	6.17	27.5
Research & Development Exemption	3.76	3.89	4.01	4.08	4.45	4.48	4.51	4.60	33.8
Semiconductor Manufacturers Exemption	7.07	9.08	11.07	10.92	10.20	6.90	4.83	4.92	65.0
Semiconductor Wafers Exemption	0.17	0.23	0.31	0.37	0.35	0.19	0.12	0.12	1.9
Ships and Vessels Exemption	4.44	3.57	3.65	8.75	12.15	10.08	8.26	8.41	59.3
Taxi Parts & Radios Exemption	0.27	0.28	0.29	0.29	0.32	0.32	0.33	0.33	2.4
Uniform Rental & Laundry Businesses Exemption	0.47	0.51	0.52	0.72	0.83	0.93	1.02	1.04	6.0
Virginia Spaceport Users Exemption	0.09	0.09	0.10	0.10	0.11	0.11	0.11	0.11	0.8

SOURCE: Weldon Cooper Center analysis of economic development incentives.
NOTE: Exempted amounts exclude the one percent sales tax for localities and, in most cases, the additional amounts collected in Northern Virginia and Hampton Roads. Not adjusted for inflation. Numbers may not add due to rounding.
-- indicates exemption had not been adopted yet.

TABLE D-4
State spending on other incentives ($ millions)

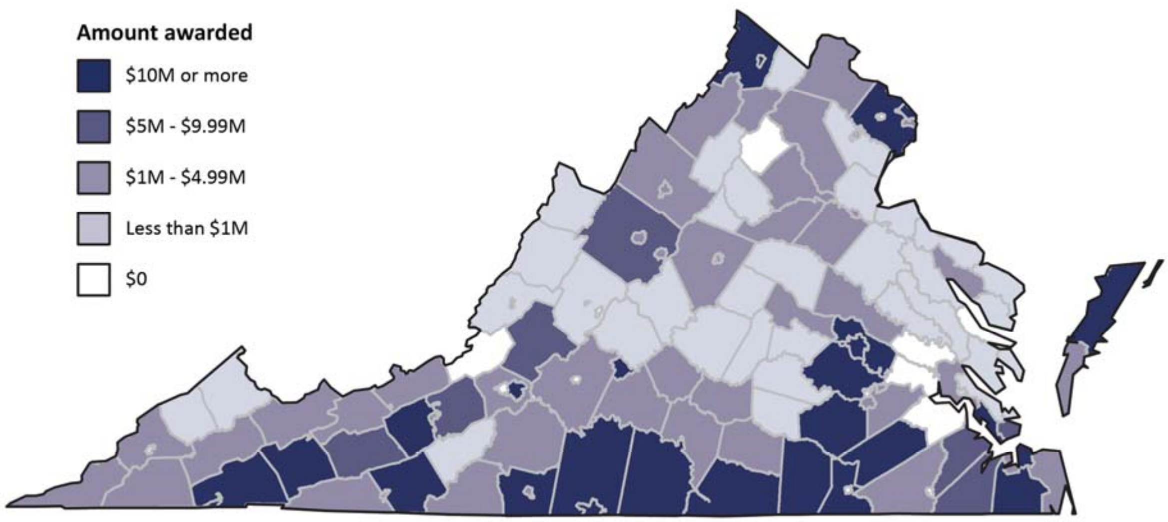
Incentive	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	Total
CIT Growth Acceleration Program	0.28	0.40	2.10	2.06	3.53	1.58	1.63	2.05	$13.7M
Data Center Single Sales Factor Apportionment		No data collected; estimates will be calculated during in-depth review.							
Economic Development Loan Fund	--	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.0
Loan Guaranty Program		0.01	0.14	0.03	0.02	0.01	0.03	0.07	0.3
State Cash Collateral Program	--	--	--	0.00	0.00	0.02	0.00	0.00	0.0
Manufacturer's Single Sales Factor Apportionment		No data collected; estimates will be calculated during in-depth review.							
Qualified Business Long-Term Capital Gain Subtraction		No data collected; estimates will be calculated during in-depth review.							
SWaM Loan Fund	--	--	0.00	0.05	0.01	0.01	0.02	0.03	0.1
Tourism Development Financing Program	0	0.00	0.31	1.27	0.00	8.43	0.00	0.92	10.9
Venture Capital Account Subtraction		No data collected; estimates will be calculated during in-depth review.							
Zero G Zero Tax Act (Part I) Subtraction		No data collected; estimates will be calculated during in-depth review.							
Zero G Zero Tax Act (Part II) Subtraction		No data collected; estimates will be calculated during in-depth review.							

SOURCE: Weldon Cooper Center analysis of economic development incentives.
NOTE: Not adjusted for inflation. Virginia Small Business Financing Authority loan program amounts listed are legislative appropriations since these revolving loan program costs are not equal to the loan award amount.
-- indicates incentive had not been adopted yet.

Appendix E: Regional distribution of grant awards

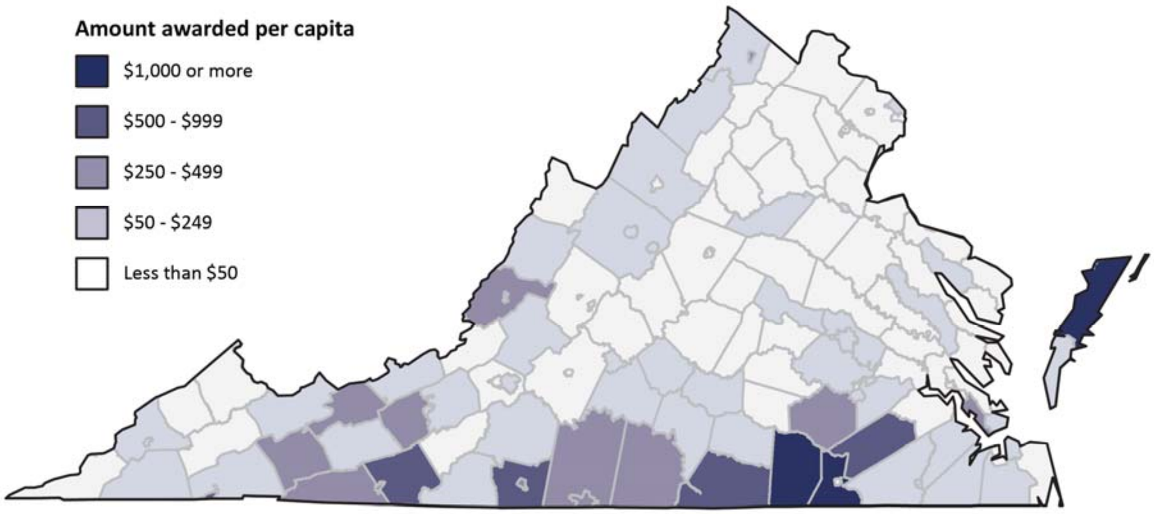
The largest amount of grant awards went to highly populated localities such as Newport News, Fairfax County, and Richmond City and to more rural localities in the Tobacco Region and the Eastern Shore (Figure E-1). Adjusted for population size, awards are concentrated in southern and rural localities (Figure E-2).

FIGURE E-1
Awards are concentrated in several highly populated areas and the southern region (FY10-FY17)



SOURCE: Weldon Cooper Center analysis of economic development incentives.
NOTE: Localities were not assigned to 14 Governor's Motion Picture Opportunity Fund projects because filming occurred in multiple localities.

FIGURE E-2
Awards are concentrated in southern and southwestern localities, adjusted for population size (FY10-FY17)

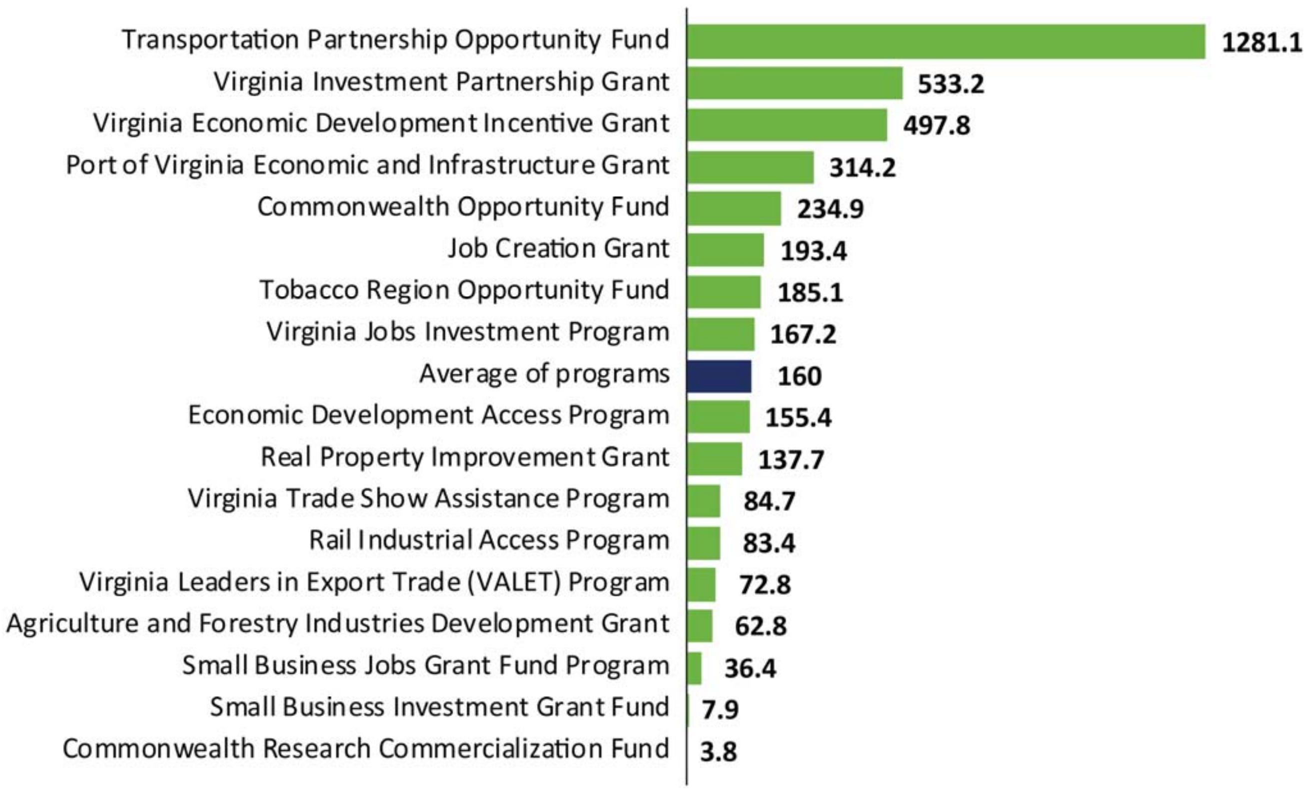


SOURCE: Weldon Cooper Center analysis of economic development incentives.
NOTE: Localities were not assigned to 14 Governor's Motion Picture Opportunity Fund projects because filming occurred in multiple localities.

Appendix F: Average employment size of grant recipients by program

The average establishment size of a grant recipient was 160 employees across all programs. However, it varied widely by program (Figure F-1), with the largest average sizes occurring in the Transportation Partnership Opportunity Fund (1,281 employees), the Virginia Investment Partnership Grant (533), and the Virginia Economic Development Incentive Grant (498). The smallest average employee sizes were for finance programs for startups—the Commonwealth Research Commercialization Fund (4 employees) and the Small Business Investment Grant Fund (8).

Figure F-1
Average employment size of business location at time of award varies widely by program (FY10-FY17)



SOURCE: Weldon Cooper Center analysis of economic development incentive grants and VEC data.
NOTE: Employment records were matched with 2,427 of the 3,914 awards (62%) and $339M of $802M in total awards.

Appendix G: Project-specific goals used by grant programs

Some programs award grants or make award commitments before projects begin. These programs require projects to achieve specific goals in order to obtain or keep the full award promised. Job creation, capital investment, and average wages paid are the most common goals, but several programs establish other goals that are more aligned with the purpose of the program.

TABLE G-1
Job creation, average wages, and capital investment are most common performance measures

Grant program	Job creation	Wages	Capital expenditures	Other
Advanced Shipbuilding Production Facility Grant Program (Newport News)	X		X	
Advanced Shipbuilding Training Facility Grant Program (Newport News)	X	X	X	Number of apprentices, training expenses
Aerospace Engine Manufacturing Performance Grant Program (Rolls-Royce)	X	X	X	
Agriculture and Forestry Industries Development Grant	X	X	X	Value of Virginia agricultural products
Commonwealth Research Commercialization Fund				Capital attracted from other sources
Commonwealth's Opportunity Fund	X	X	X	
Economic Development Access Program			X	
Governor's Motion Picture Opportunity Fund	X			Total Virginia spending Value of advertising
Growth Acceleration Program				Capital attracted from other sources
Major Eligible Employer Grant	X	X	X	
Port of Virginia Economic & Infrastructure Grant	X			Port user
Pulp, Paper, and Fertilizer Advanced Manufacturing Grant Program	X		X	
Rail Industrial Access Program			X	Carloads
Semiconductor Custom Grant (Micron)	X		X	
Semiconductor Custom Grant (Qimonda)	X	X	X	
Small Business Investment Grant Fund	X			
Small Business Jobs Grant Fund Program	X	X	X	
SRI custom grant	X	X		
Tobacco Commission Megasite Grant				
Tobacco Region Opportunity Fund	X	X	X	
Transportation Partnership Opportunity Fund	X		X	
VALET Program				International sales
Virginia Economic Development Incentive Grant	X	X	X	
Virginia Investment Partnership Grant	X	X	X	
Virginia Jobs Investment Program	X	X	X	Job retrainings
Virginia Trade Show Assistance Program				International sales

SOURCE: Weldon Cooper Center analysis of agency documents.
NOTE: Includes programs that did not make awards during the FY10 to FY16 time period.

Appendix H: Economic and revenue impact analysis

The economic impact analysis for incentives involved modeling (1) the additional economic activity that occurred because of the incentive and (2) the simultaneous increase in taxes that was used to "pay" for the incentive. Increasing taxes has the general effect of decreasing employment and other economic activity. Thus, increasing taxes to pay for the incentive reduced the total effect of the incentive on the economy.

Economic impact modeling

Weldon Cooper Center staff conducted economic impact analyses of Virginia economic incentives using REMI PI+ (Policy Insight Plus) software. REMI PI+ is a dynamic, multi-sector regional economic simulation model used for economic forecasting and measuring the impact of public policy changes on local economies. The model combines different contemporary regional economic modeling methods such as input-output analysis, econometric forecasting, and computable general equilibrium to characterize the mechanics and path of a regional economy. The model has been extensively peer-reviewed and is widely used by state agencies elsewhere in the nation to model economic and tax revenue impacts of economic development incentive programs, including economic development incentives. The model used for this analysis was customized for the state of Virginia and includes 70 industry sectors. Outcome variables examined include total employment, state GDP, and personal income. In addition, a state tax revenue impact analysis was conducted based on a methodology described further below.

The modeling of each program was conducted differently depending on the type of economic stimulus provided by the program and available information on program outcomes (Table H-1). The most comprehensive information on establishment-level performance outcomes was available for grant programs, which typically track employment, capital investment, and other performance metrics related to the specific economic aims of the programs. Information on employment benchmarks was also available for four Small Business Financing Authority loan programs, which a previous JLARC study corroborated are in aggregate indicative of ultimate employment creation. (See *Workforce and Small Business Incentives*, JLARC 2018.) Similar information was not available for sales and use tax exemptions and tax credits. Thus, those programs were generally modeled as decreasing either firm capital or production costs. Programs were modeled as decreasing firms costs of capital if the incentive reduced the costs of purchasing tangible personal property. They were modeled as decreasing firm production costs if the costs of labor as well as equipment and supplies were reduced by the incentive.

Table H-1
REMI policy variables

Name of incentive	REMI policy variables	Modeling description
Agriculture and Forestry Industries Development Grant Advanced Shipbuilding Production Facility Grant Program (Newport News)	Labor and Capital Demand>-Employment>-Firm >-Industry	Model economic impact estimate based on 10% deadweight assumption based on documented or projected employment increase.

Name of incentive	REMI policy variables	Modeling description
Commonwealth’s Opportunity Fund Governor's Motion Picture Opportunity Fund* Job Creation Grant Major Eligible Employer Grant Port of Virginia Economic and Infrastructure Grant Small Business Investment Grant Fund Small Business Jobs Grant Fund Program Tobacco Region Opportunity Fund Virginia Economic Development Incentive Grant Virginia Investment Partnership Grant Virginia Jobs Investment Program--Job Creation		Model economic impact estimate based on 10% deadweight based on documented investment. Assign REMI industry based on grant project industry identifiers.
Economic Development Loan Fund Loan Guaranty Program State Cash Collateral Program SWaM Loan Fund	Labor and Capital Demand>-Employment>-Firm >-Industry	Model economic impact estimate based on 31% deadweight assumption for loan programs based on documented or projected employment increase. Assign REMI industry based on loan project industry identifiers.
Economic Development Access Program Rail Industrial Access Program Real Property Improvement Grant Megasite Grants (Tobacco Commission) Transportation Partnership Opportunity Fund	Output and Demand>-Investment Spending>-Nonresidential	Model economic impact estimate based on 10% deadweight based on documented investment. Assign REMI industry based on grant project industry identifiers.
Farm Wineries and Vineyards Tax Credit Recyclable Materials Processing Equipment Tax Credit Airline Common Carriers Exemption Certain Printed Materials for Out-of-State Distribution Exemption Data Centers (Broad) Exemption Electrostatic Duplicators Exemption Film, Television, & Audio Production Inputs Exemption Media Provider Equipment Exemption Pollution Control Equipment & Facilities Exemption Railroad Common Carriers Exemption Railroad Rolling Stock Exemption Research & Development Exemption Semiconductor Manufacturers Exemption Semiconductor Wafers Exemption Ships and Vessels Exemption Taxi Parts & Radios Exemption Uniform Rental & Laundry Businesses Exemption Virginia Spaceport Users Exemption	Compensation and Prices->Production Costs->Capital Costs	Model economic impact based on reduced capital cost equal to tax credit or estimated exemption tax revenue effect. Assign REMI industry based on industry(ies) affected based on program descriptions

Name of incentive	REMI policy variables	Modeling description
Barge and Rail Usage Tax Credit Biodiesel and Green Diesel Fuels Producers Tax Credit Green Job Creation Tax Credit International Trade Facility Tax Credit Major Business Facility Job Tax Credit Major Research and Development Tax Credit Motion Picture Production Tax Credit Research and Development Expenses Tax Credit Telework Expenses Tax Credit Virginia Coal Production and Employment Incentive Tax Credit Virginia Port Volume Increase Tax Credit Worker Retraining Tax Credit	Compensation and Prices->Production Costs->Production Costs	Model economic impact estimate based on reduced production cost. Assign REMI industry based on industry(ies) affected based on program descriptions and corporate tax credit records matched with VEC employment records.
Virginia Jobs Investment Program (VJIP)--Training	(1) Output and Demand>-Investment Spending>-Equipment, (2) Output and Demand>-Real Disposable Income>-Compensation (Adjust compensation by amount of training related wage increase). (3) Output and Demand>-Output (Adjust by ratio of value-added to training related wage increase)	Model economic impact estimate based on 1.5% wage and salary increase with associated output increase. Also, capital investment based on 10% deadweight factor. Assign to industries based on grant project records.
Virginia Trade Show Assistance Program Contractor Temporary Storage Exemption Out-of-state Nuclear Facility Repair Exemption	Output and Demand>-Industry Sales (Exogenous Production)>	Model economic impact as increased sales of (a) advertising, public relations and related services, (b) warehousing and storage, and (c) construction.
Virginia Leaders in Export Trade Program	Output and Demand>-Industry Sales (International Exports)>	Model economic impact as increased sales for industry based on grant project records.

Source: Weldon Cooper Center.

When employment, capital investment, and other documented performance metrics were modeled (grant and loan programs), only a small portion of the program documented outcomes were attributed to the effect of the incentive. In no instance are estimated program employment levels equal to program reported metric attainment. Even though the success of incentives in swaying business decisions varies by program (and by project), general assumptions are made by program type. For grants, the assumption was made that 10 percent of grant employment creation is attributable to the programs, with one exception (the Governor's Motion Picture Opportunity Fund). The 10 percent effect for grant programs is derived from the 10 to 15 percent consensus value range commonly recommended for use in economic incentive evaluations (Bartik 2018; Peters and Fisher 2004) and is the same estimate used in a previous analysis of state economic incentive economic impacts (See *Review of Economic Development Incentive Grants*, JLARC 2012). For the Governor's Motion Picture

Opportunity Fund, 95 percent of film activity (job creation and Virginia spending) is attributed to the grant program based on a previous film industry evaluation study. (See *Evaluation: Film Incentives*, JLARC 2017). Film project employment was also converted to motion picture and sound recording industries full-time-equivalents because of the preponderance of part-time and seasonal employees in grant-supported film and television productions. For loan programs, 31 percent of loan program employment benchmarks were established as the program effects of the loan programs based on a previous analysis of loan program effects. (See *Workforce and Small Business Incentives*, JLARC 2018).

The 10 percent assumption was also used for modeling grant effects on capital investment (Economic Development Access Program, Rail Industrial Access Program, Real Property Improvement Grant, Tobacco Commission Megasite Grants, and Transportation Partnership Opportunity Fund), international sales increases for the VALET program, and advertising/marketing spending associated with Virginia Trade Show Assistance program grants.

Some REMI policy variables require industry level data aggregated into 70 REMI industry categories. Since NAICS-level industry information from grant files was incomplete, several methods and assumptions were used to complete this information for each project (Table H-2). Internet keyword searches of firm names and addresses were conducted using business portals such as Manta.com and company websites to assign representative NAICS codes, which were then mapped onto REMI industry categories. Many Real Property Improvement Program limited liability company awardees were assigned REMI codes for the real estate industry since many of the firms are created for short-term real estate development projects. Tobacco Megasite projects were categorized as supporting the machinery manufacturing industry. Tax credit utilization assignments were based on available corporate tax filer industry characteristics when corporate users made up a large portion of filers or other information was not available. Thus, corporate filer industries are assumed to be similar to other pass-through entities that file individual income taxes. Most sales and use tax exemptions are fairly narrowly targeted to individual industries. Thus, industry assignment for most programs was relatively straightforward. In selected instances, secondary data were used. For the Pollution Control Equipment tax credit program, tax credit utilization was assigned to industries using industry information from the U.S. Census Bureau's Pollution Abatement Costs and Expenditures: 2005 (issued in 2008) on pollution abatement capital expenditures for the state of Virginia (Table 8). For the Research and Development Exemption, industry information was drawn from the National Science Foundation Business Research and Innovation: 2013 on corporate R&D expenditures by industry (Table 30).

Table H-2
REMI industry assignments for modeling impacts of tax credits and sales and use tax exemptions

Programs	Industries
Tax credit programs	
Barge and Rail Usage Tax Credit	Warehousing and storage
Biodiesel and Green Diesel Fuels Producers Tax Credit	Oil and gas extraction
Farm Wineries and Vineyards Tax Credit	Beverage and tobacco product manufacturing
Green Job Creation Tax Credit	Construction
International Trade Facility Tax Credit	Warehousing and storage

Programs	Industries
Major Business Facility Job Tax Credit	Varies, based on corporate tax credit utilization files from Department of Taxation
Motion Picture Production Tax Credit	Motion picture and sound recording industries
Qualified Equity and Subordinated Debt Investment Tax Credit	No industry assignment used
Recyclable Materials Processing Equipment Tax Credit	Varies, based on corporate tax credit utilization files from Department of Taxation
Research and Development Expenses Tax Credit	Varies, based on corporate tax credit utilization files from Department of Taxation
Telework Expenses Tax Credit	Professional, scientific, and technical services
Virginia Coal Production and Employment Incentive Tax Credit	Utilities
Virginia Port Volume Increase Tax Credit	Warehousing and storage
Worker Retraining Tax Credit	Varies, based on corporate tax credit utilization files from Department of Taxation
Sales and use tax exemptions	
Airline Common Carriers Exemption	Air transportation
Certain Printed Materials for Out-of-State Distribution Exemption	Printing and related support activities
Contractor Temporary Storage Exemption	Warehousing and storage
Data Centers (Broad) Exemption	Internet publishing and broadcasting; ISPs search portals and data processing; Other information services
Electrostatic Duplicators Exemption	Administrative and support services
Film, Television, & Audio Production Inputs Exemption	Motion picture and sound recording industries
Media Provider Equipment Exemption	Broadcasting except internet
Out-of-state Nuclear Facility Repair Exemption	Construction
Pollution Control Equipment & Facilities Exemption	U.S. Census Bureau PACE Survey
Railroad Common Carriers Exemption	Rail transportation
Railroad Rolling Stock Exemption	Machinery manufacturing (99.3%) and other transportation equipment manufacturing (0.7%)
Research & Development Exemption	National Science Foundation Business Research and Innovation
Semiconductor Manufacturers Exemption	Computer and electronic product manufacturing
Semiconductor Wafers Exemption	Computer and electronic product manufacturing
Ships and Vessels Exemption	Water transportation
Taxi Parts & Radios Exemption	Transit and ground transportation
Uniform Rental & Laundry Businesses Exemption	Personal and laundry services
Virginia Spaceport Users Exemption	Air transportation

SOURCE: Weldon Cooper Center.

For the purposes of the economic impact analysis, only completed grant and other incentive projects (i.e., loans, gap funding) were counted. Outcomes and expenditures were grouped for analysis purposes based on the date/year when awards were completed.

When modeling firm employment increases, the REMI firm employment option is used. This option assumes that firm sales associated with incentivized job creation may displace to various degrees the sales of other Virginia-based firms in the same industry based on industry market-area characteristics.

In order to generate input data to capture the effect of firm retraining for the Virginia Jobs Investment Program, data for wages and salaries and value-added by industry were obtained from the Virginia REMI PI+ model. Ratios of value-added per wages were formed for each REMI industry. These ratios were then multiplied by estimated wage increases (1.5%) that resulted from firm retraining for the firms that were assumed to have been incentivized by the VJIP retraining grant. The results by year were assigned to the REMI policy variables "Industry Sales/Exogenous Production" by REMI industry. Estimated wage increases were assigned to compensation policy variable. This method is the same as used in an intensive review of the VJIP program. (See *Workforce and Small Business Incentives*, JLARC 2018.)

Two sales and use tax exemptions affect the Virginia economy though reducing the costs of goods sold to out-of-state buyers rather than Virginia based firms. Thus, the sales tax exemption was modeled as an increase in sales for the Virginia warehousing and storage industry (Contractor Temporary Storage Exemption) and construction industry (Out-of-state Nuclear Facility Repair Exemption) caused by the de-facto price reduction. Industry demand for the production inputs was assumed to be relatively inelastic (.5).

For each economic impact analysis, the opportunity cost of state funds was accounted for by raising personal income taxes. Personal income taxes are the largest source of tax revenue for the general fund, and thus seemed appropriate as a source for offsetting the cost of the incentive programs.

REMI PI+ discontinued tax revenue estimation as part of its base package beginning with the 2.0 version and moved improved revenue modeling capabilities into its new REMI Tax PI model. In order to conduct tax revenue analysis, this study scaled revenues to economic outputs using the procedure described in Regional Economic Models, Inc. (2012). State tax revenues were derived from the Census of Government's State and Local Government Finance and Annual Survey of State Tax Collections. Revenue estimates are calculated by multiplying state revenue rates by the corresponding base quantity, which included state-level demand for selected industries (general sales tax, selective sales tax, license taxes), state-level personal income less transfer payments (individual income tax), corporate income tax (gross domestic product), and personal income (other taxes). The tax revenue impact analysis does not include the effect of economic development incentives on other revenues, including non-general revenues. Nor does it estimate the effect on local tax revenues. Lastly, it does not estimate the effect of economic development incentives on government expenditures at the state or local level.

Economic impact estimates

Tables H-3 through H-12 provide estimates of the total economic activity induced by each group of incentives (i.e., grants, sales and use tax exemptions, tax credits, and other incentives), and the net impact (total activity adjusted for the reduction). Economic activity reported in the tables is defined as follows:

- Total employment – private and public employment,
- Private employment – private non-farm employment,

- Virginia GDP – Gross domestic product for Virginia (the market value of goods and services produced by labor and property in Virginia), and
- Personal income – received by persons from all sources.

Table H-3
Impact of economic development grant programs on the Virginia economy

Impact to Virginia	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Economic activity induced by grant programs								
Total employment	949	1,701	2,598	3,358	4,707	5,734	7,205	10,088
Private employment	910	1,609	2,439	3,127	4,376	5,307	6,656	9,339
Virginia GDP ($M)	$93.1	$195.9	$320.5	$442.9	$655.6	$822.8	$1,092.3	$1,600.7
Personal income ($M)	$58.5	$112.0	$183.2	$258.8	$381.7	$487.8	$646.0	$932.0
Reduction in economic activity because of the tax increase to pay for the grant programs								
Total employment	-137	-186	-305	-349	-562	-393	-357	-711
Private employment	-130	-174	-283	-320	-519	-350	-316	-651
Virginia GDP ($M)	-$11.4	-$17.0	-$28.5	-$34.6	-$56.7	-$43.7	-$40.3	-$79.1
Personal income ($M)	-$8.3	-$12.2	-$21.4	-$26.8	-$45.1	-$36.7	-$36.8	-$68.5
Net economic impact of grant programs								
Total employment	812	1,515	2,294	3,009	4,145	5,342	6,848	9,376
Private employment	780	1,436	2,156	2,807	3,857	4,957	6,341	8,688
Virginia GDP ($M)	$81.7	$179.0	$292.0	$408.3	$598.8	$779.0	$1,052.0	$1,521.6
Personal income ($M)	$50.2	$99.7	$161.8	$232.0	$336.6	$451.2	$609.1	$863.5

Table H-4
Revenue collections from economic development incentive grant programs and their return in revenue

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Revenue tax collections induced by grant programs								
General sales tax	$1,360,844	$1,914,321	$3,464,911	$4,480,728	$5,847,956	$7,819,089	$10,191,534	$15,065,002
Selective sales tax	$894,287	$1,321,930	$2,357,968	$3,001,672	$4,064,847	$5,569,465	$7,658,874	$10,824,677
License taxes	$121,865	$204,242	$363,918	$483,200	$636,147	$830,648	$1,024,964	$1,530,166
Individual income tax	$1,624,467	$3,202,455	$5,306,976	$8,075,627	$11,364,703	$15,119,382	$20,149,175	$29,770,331
Corporate income tax	$169,356	$351,325	$586,688	$734,800	$1,022,830	$1,385,718	$1,646,787	$2,707,877
Other taxes	$69,945	$132,142	$205,105	$332,413	$432,321	$548,024	$748,911	$1,047,306
Total revenue	$4,240,763	$7,126,415	$12,285,565	$17,108,440	$23,368,804	$31,272,325	$41,420,245	$60,945,359
Grant awards	$14,756,321	$18,467,386	$31,963,855	$37,162,173	$66,817,311	$42,891,457	$43,544,353	$102,750,258
Net revenue	-$10,515,558	-$11,340,972	-$19,678,290	-$20,053,733	-$43,448,507	-$11,619,132	-$2,124,108	-$41,804,899
Return in revenue								
Return per $1 spent	$0.29	$0.39	$0.38	$0.46	$0.35	$0.73	$0.95	$0.59

Table H-5
Impact of economic development tax credits on the Virginia economy

Impact to Virginia	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Economic activity induced by tax credits								
Total employment	52	21	61	456	292	354	262	294
Private employment	50	19	57	425	263	322	234	266
Virginia GDP ($M)	$3.1	$2.2	$4.5	$38.3	$31.7	$38.3	$29.5	$31.9
Personal income ($M)	$3.2	$1.5	$4.3	$36.7	$23.4	$30.4	$24.9	$28.8
Reduction in economic activity because of the tax increase to pay for the tax credits								
Total employment	-62	-24	-67	-560	-229	-257	-178	-198
Private employment	-59	-21	-62	-529	-203	-230	-154	-174
Virginia GDP ($M)	-$5.1	-$2.5	-$6.1	-$52.0	-$26.5	-$27.8	-$20.6	-$22.6
Personal income ($M)	-$3.8	-$1.7	-$4.8	-$39.4	-$19.9	-$24.1	-$19.5	-$22.2
Net economic impact of tax credits								
Total employment	-10	-2	-6	-104	63	96	85	96
Private employment	-9	-2	-5	-104	61	92	81	92
Virginia GDP ($M)	-$2.0	-$0.2	-$1.6	-$13.7	$5.3	$10.4	$8.9	$9.3
Personal income ($M)	-$0.5	-$0.2	-$0.4	-$2.7	$3.6	$6.3	$5.4	$6.6

Table H-6
Revenue collections from economic development tax credits and their return in revenue

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Revenue tax collections induced by tax credits								
General sales tax	-$426	-$600	-$841	$15,321	-$1,630	-$1,809	-$3,810	-$4,160
Selective sales tax	-$280	-$414	-$573	$10,264	-$1,133	-$1,289	-$2,863	-$2,989
License taxes	-$38	-$64	-$88	$1,652	-$177	-$192	-$383	-$423
Individual income tax	$89,066	$40,796	$122,572	$1,149,781	$679,309	$921,236	$741,490	$879,698
Corporate income tax	$5,705	$4,022	$8,235	$63,617	$49,508	$64,437	$44,470	$54,015
Other taxes	$3,841	$1,778	$4,837	$47,104	$26,547	$34,160	$28,836	$32,368
Total revenue	$97,868	$45,518	$134,142	$1,287,740	$752,424	$1,016,544	$807,740	$958,509
Tax credit awards	$6,657,485	$1,539,364	$7,198,198	$68,853,091	$18,839,552	$28,505,322	$20,713,418	$28,081,483
Net revenue	-$6,559,617	-$1,493,846	-$7,064,056	-$67,565,352	-$18,087,128	-$27,488,778	-$19,905,678	-$27,122,974
Return in revenue								
Return per $1 spent	$0.01	$0.03	$0.02	$0.02	$0.04	$0.04	$0.04	$0.03

Table H-7
Impact of economic development sales and use tax exemptions on the Virginia economy

Impact to Virginia	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Economic activity induced by sales and use tax exemptions								
Total employment	637	1,043	1,394	1,625	1,817	1,842	1,752	1,669
Private employment	609	982	1,301	1,503	1,670	1,679	1,583	1,497
Virginia GDP ($M)	$43.9	$92.7	$138.2	$172.8	$203.4	$223.2	$228.9	$229.8
Personal income ($M)	$38.2	$67.2	$97.6	$124.1	$149.6	$163.5	$168.1	$171.6
Reduction in economic activity because of the tax increase to pay for the sales and use tax exemptions								
Total employment	-529	-657	-776	-923	-1,099	-1,133	-1,081	-1,046
Private employment	-502	-611	-714	-844	-1,001	-1,023	-965	-927
Virginia GDP ($M)	-$44.0	-$60.1	-$74.1	-$91.4	-$112.7	-$121.6	-$120.9	-$120.7
Personal income ($M)	-$32.2	-$43.4	-$56.0	-$72.3	-$92.2	-$103.2	-$107.4	-$112.1
Net economic impact of sales and use tax exemptions								
Total employment	108	386	618	702	718	708	672	622
Private employment	106	371	588	660	669	656	618	570
Virginia GDP ($M)	-$0.1	$32.5	$64.2	$81.4	$90.7	$101.6	$108.0	$109.1
Personal income ($M)	$6.0	$23.8	$41.6	$51.8	$57.4	$60.3	$60.7	$59.5

Table H-8
Revenue collections from economic development sales and use tax exemptions and their return in revenue

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Revenue tax collections induced by sales and use tax exemptions								
General sales tax	-$477,768	-$148,827	$100,192	$510,272	$895,491	$1,532,431	$1,922,028	$1,911,628
Selective sales tax	-$313,968	-$102,772	$68,184	$341,835	$622,446	$1,091,536	$1,444,392	$1,373,565
License taxes	-$42,785	-$15,879	$10,523	$55,028	$97,412	$162,795	$193,299	$194,166
Individual income tax	$1,061,597	$1,913,817	$2,806,761	$3,834,679	$4,390,692	$4,971,179	$5,103,127	$5,279,126
Corporate income tax	$79,796	$166,204	$253,050	$286,651	$317,345	$375,928	$345,110	$388,681
Other taxes	$45,704	$79,275	$109,253	$159,376	$169,368	$183,650	$194,890	$192,821
Total revenue	$352,576	$1,891,818	$3,347,963	$5,187,842	$6,492,753	$8,317,519	$9,202,846	$9,339,987
Exempted amount	$57,062,059	$64,279,181	$77,206,038	$98,521,668	$126,354,919	$136,453,045	$136,176,309	$141,161,720
Net revenue	-$56,709,483	-$62,387,362	-$73,858,075	-$93,333,826	-$119,862,166	-$128,135,526	-$126,973,463	-$131,821,733
Return in revenue								
Return per $1 spent	$0.01	$0.03	$0.04	$0.05	$0.05	$0.06	$0.07	$0.07

Table H-9
Impact of loan and gap financing incentives on the Virginia economy

Impact to Virginia	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Economic activity induced by loan and gap financing incentives								
Total employment	0	0	218	263	290	300	316	391
Private employment	0	0	208	246	268	275	289	359
Virginia GDP ($M)	$0.02	$0.03	$28.09	$36.71	$41.71	$44.95	$49.94	$64.26
Personal income ($M)	$0.03	$0.01	$14.27	$19.06	$22.68	$25.35	$28.60	$38.12
Reduction in economic activity because of the tax increase to pay for the loan and gap financing incentives								
Total employment	-1	0	-2	-1	-3	-4	-5	-1
Private employment	-1	0	-2	-1	-3	-4	-4	-1
Virginia GDP ($M)	-$0.07	-$0.01	-$0.16	-$0.10	-$0.26	-$0.31	-$0.36	-$0.12
Personal income ($M)	-$0.06	-$0.01	-$0.15	-$0.11	-$0.27	-$0.34	-$0.41	-$0.20
Net economic impact of loan and gap financing incentives								
Total employment	-1	0	216	262	286	296	312	390
Private employment	-1	0	206	245	264	271	284	357
Virginia GDP ($M)	-$0.05	$0.02	$27.93	$36.61	$41.45	$44.64	$49.58	$64.14
Personal income ($M)	-$0.03	$0.00	$14.12	$18.96	$22.41	$25.02	$28.19	$37.93

Table H-10
Revenue collections from other economic development incentives and their return in revenue

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Revenue tax collections induced by loan and gap financing incentives								
General sales tax	-$1,862	$244	$287,883	$374,283	$403,674	$450,578	$510,903	$618,235
Selective sales tax	-$1,223	$169	$195,913	$250,735	$280,589	$320,942	$383,940	$444,222
License taxes	-$167	$26	$30,236	$40,363	$43,912	$47,866	$51,382	$62,795
Individual income tax	$714	$371	$417,382	$598,204	$675,591	$783,424	$885,945	$1,209,310
Corporate income tax	$30	$52	$51,415	$60,901	$65,079	$75,699	$75,295	$108,709
Other taxes	$31	$16	$15,982	$24,482	$25,681	$28,480	$33,163	$42,840
Total revenue	-$2,477	$878	$998,812	$1,348,968	$1,494,527	$1,706,989	$1,940,627	$2,486,110
Loans or gap financing	$105,535	$0	$250,000	$125,000	$420,537	$480,194	$567,747	$122,100
Net revenue	-$108,012	$878	$748,812	$1,223,968	$1,073,990	$1,226,795	$1,372,880	$2,364,011
Return in revenue								
Return per $1 spent	-$0.02	--	$4.00	$10.79	$3.55	$3.55	$3.42	$20.36

Table H-11
Impact of all Virginia's economic development incentives on the Virginia economy

Impact to Virginia	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Economic activity induced by all incentives								
Total employment	1,638	2,765	4,271	5,701	7,105	8,229	9,537	12,442
Private employment	1,568	2,610	4,005	5,301	6,577	7,583	8,763	11,461
Virginia GDP ($M)	$140.1	$290.9	$491.3	$690.7	$932.4	$1,129.2	$1,400.6	$1,926.7
Personal income ($M)	$99.9	$180.7	$299.3	$438.7	$577.4	$707.0	$867.5	$1,170.5
Reduction in economic activity because of the tax increase to pay for all incentives								
Total employment	-729	-867	-1,149	-1,832	-1,894	-1,787	-1,621	-1,957
Private employment	-692	-805	-1,061	-1,694	-1,726	-1,607	-1,438	-1,754
Virginia GDP ($M)	-$60.6	-$79.6	-$108.8	-$178.1	-$196.2	-$193.5	-$182.1	-$222.5
Personal income ($M)	-$44.4	-$57.3	-$82.2	-$138.6	-$157.5	-$164.3	-$164.1	-$203.0
Net economic impact of all incentives								
Total employment	910	1,898	3,122	3,869	5,212	6,442	7,916	10,484
Private employment	877	1,805	2,944	3,607	4,851	5,977	7,324	9,707
Virginia GDP ($M)	$79.6	$211.3	$382.5	$512.7	$736.2	$935.6	$1,218.5	$1,704.1
Personal income ($M)	$55.6	$123.2	$217.1	$300.1	$420.0	$542.8	$703.4	$967.5

Table H-12
Revenue collections from all Virginia's economic development incentives and their return in revenue

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Revenue tax collections induced by all incentives								
General sales tax	$880,788	$1,765,138	$3,852,145	$5,380,604	$7,145,491	$9,800,288	$12,620,654	$17,590,705
Selective sales tax	$578,815	$1,218,913	$2,621,492	$3,604,506	$4,966,749	$6,980,655	$9,484,343	$12,639,474
License taxes	$78,876	$188,325	$404,589	$580,242	$777,294	$1,041,117	$1,269,261	$1,786,704
Individual income tax	$2,775,844	$5,157,439	$8,653,692	$13,658,291	$17,110,295	$21,795,220	$26,879,738	$37,138,465
Corporate income tax	$254,887	$521,603	$899,389	$1,145,970	$1,454,762	$1,901,782	$2,111,662	$3,259,282
Other taxes	$119,520	$213,211	$335,176	$563,376	$653,917	$794,314	$1,005,799	$1,315,335
Total revenue	$4,688,730	$9,064,629	$16,766,482	$24,932,989	$32,108,508	$42,313,377	$53,371,458	$73,729,965
Incentive amounts	$78,581,400	$84,285,931	$116,618,091	$204,661,932	$212,432,319	$208,330,017	$201,001,827	$272,115,560
Net revenue	-$73,784,658	-$75,222,180	-$100,600,421	-$180,952,911	-$181,397,801	-$167,243,435	-$149,003,249	-$200,749,606
Return in revenue								
Return per $1 spent	$0.06	$0.10	$0.13	$0.11	$0.14	$0.19	$0.25	$0.26

Tables H-3 to H-12:
SOURCE: Weldon Cooper Center economic impact analysis.
NOTE: Includes direct, indirect, and induced impacts.

Appendix I: References

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Appendix J: Agency responses

As part of an extensive validation process, the state agencies and other entities that are subject to a JLARC assessment are given the opportunity to comment on an exposure draft of the report. JLARC staff sent an exposure draft of this report to the Virginia Economic Development Partnership, Virginia Department of Taxation, Secretary of Commerce and Trade, and Secretary of Finance.

Appropriate corrections resulting from technical and substantive comments are incorporated in this version of the report. This appendix includes response letters from the Virginia Department of Taxation and the Secretary of Commerce and Trade.

COMMONWEALTH *of* VIRGINIA

Department of Taxation

December 3, 2018

Mr. Hal E. Greer, Director
Joint Legislative Audit and Review Commission
919 East Main Street, Suite 2101
Richmond, Virginia 23219

Dear ~~Mr. Greer~~ Hal:

Thank you for the opportunity to review and comment on the exposure draft report: *Economic Development Incentives 2018*. We believe the report is very well done and will be useful to the members of the General Assembly going forward. We also appreciate you incorporating our comments and suggestions into the final report draft.

Thank you again for the opportunity to review the draft report. Should you have any additional questions, please feel free to contact me.

Sincerely,

Craig M. Burns
Tax Commissioner

c: The Honorable Aubrey L. Layne, Jr., Secretary of Finance

COMMONWEALTH of VIRGINIA

Office of the Governor

R. Brian Ball
Secretary of Commerce and Trade

December 3, 2018

Mr. Hal E. Greer
Director
Joint Legislative Audit and Review Commission
Commonwealth of Virginia
919 East Main Street
Suite 2101
Richmond, Virginia
23219

Dear Mr. Greer,

Thank you for submitting the draft of the JLARC report, *Economic Development Incentives 2018.* We have reviewed the report and have no recommended changes. We look forward to your presentation of the report on December 10.

Sincerely yours,

Brian Ball

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