Public Investment and Economic Growth

Summary

March 22, 2017

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THE ROLE OF PUBLIC EXPENDITURE IN THE PROVISION OF EDUCATION AND HEALTH

MARCH 2017

EXECUTIVE SUMMARY

We started this assessment with the simple premise that government has a role to play in providing basic services to its citizens. Health and education are two of those mandates. While one should not expect government mandates for basic services to be revenue generating or even self-supporting, there is an increasing need for transparency in where the tax payers dollars are being invested and how they are being used and an even greater desire for accountability. How are we performing? Are we holding our agencies to standards and showing improvements in services provided over time.

This report has focused on both these tenants of transparency and accountability. Within the context of transparency, we find the following data to be relevant.

TRANSPARENCY

General Fund Impact	Department of Education	Department of Health
General Fund revenue spent on Personnel costs (salary and fringe)	80%	80%
General Fund share of Entire Budget	77%	58%
Ratio of General Funds to Additional Funding	1:0.31	1:1
Job Creation on General Funds	2,080	278
Additional Jobs not attributed to General Funds	266	153
Job Generation Ratio (General Funds required to generate 1 job)	$64,320	$45,000

ECONOMIC GROWTH

In addition to the table above that indicates the impact of General Fund investment within each department, this investment also has an impact outside of these departments on the general economy of the US Virgin Islands (USVI). The following tables indicate that wider impact.

CONSUMER EXPENDITURES

It is estimated that 80% of one's salary is circulate through the local economy. Consumer expenditure surveys indicate much of this spending goes toward housing costs (39%), general goods and services (18%), food (13%) and transportation (11%). All of these major categories are local expenditures and will have additional indirect and induced job and income multipliers throughout the local economy. Consumer spending accounted for approximately $82 million for the Department of Education and $14 million for the Department of Health.

OPERATIONAL EXPENDITURES

While a significant amount of the budget is spent on personnel costs, both departments spend part of their budgets on operating expenditures such as supplies, utilities, capital projects and other services and charges. These expenditures totaling $31 million for the Department of Education and $7.2 million for the Department of Health circulate within the economy at large creating added jobs, income and growth.

INDIRECT IMPACT ON JOBS AND INCOME

Using an econometric model, IMPLAN, the following table highlights the indirect impact of both consumer and operational expenditures for the two departments studied. This impact is in addition to the direct jobs, payroll and expenditures occurring within the Departments. This impact is often called the multiplier effect and this is precisely what grows the economy as a whole.

TOTAL INDIRECT IMPACT

	Department of Education	Department of Health
Employment	298	50
Labor Income	$11,470,500	$1,935,253
Total Value Added	**$28,339,767**	**$4,781,360**

COMBINED IMPACT OF EMPLOYMENT AND LABOR INCOME

Government invests approximately $150 million in the Department of Education and approximately $19 million in the Department of Health. While this type of investment is a public service mandate, it helps to put this investment into perspective. This assessment provides the transparency required of public investments and shows that beyond the basic mandates of a healthy and educated citizenry, these investments show immediate results in jobs and income revenue for the citizens of USVI.

	Department of Education	Department of Health
Employment	2,644	482
Labor Income	$136,099,336	$17,923,407
Total Value Added	**$28,339,767**	**$4,781,360**

In addition to these demonstrable results, the bigger picture of a health, well- educated citizenry are not to be taken lightly. Significant economic literature points to the significance of both education and health education on economic growth and vitality.

SECTION 1. THE ROLE OF PUBLIC EXPENDITURE IN THE PROVISION OF EDUCATION AND HEALTH

The role of governments is to provide basic services to their citizenry. Education and health are two such mandates. While direct return on investment for such spending is difficult to calculate and profits are not expected, efficiencies and performance measures are in the spotlight. Citizens expect a decent level of services from their governments and the private sector economy is reliant on government-funded services.

Local government budget revenues comprise taxes levied on local residents (property, income and sales tax), user fees, corporate taxes, State aid and federal grants. Expenditures mandated by law include education, health and safety, and basic public infrastructure and utilities (transportation networks, water, sewer, power). In addition to these basic mandates it is expected that government will support private enterprise by creating a business friendly environment and providing services necessary for private enterprise to survive and thrive within the local economy.

As revenue generation is a major component of government budging, there is an increasing need to demonstrate the "value" of government services. Citizens, corporations, legislators and the federal government are looking to performance measures and benchmarks to prove efficiencies, necessity and good governance practices. Municipal benchmarks are being standardized (for example, how many police officers are required per 1,000 residents) and variations to the standards need explanation. While it is widely accepted that standards do not represent all municipalities, and local values will prevail, there is an increasing need to evaluate local services provided and the level of funding required.

TRENDS IN PUBLIC EXPENDITURE ON EDUCATION AND HEALTH

The objective of this report is to analyze the budget and public expenditures of two key social sectors, health and education, based on 2014, 2015, 2016 and proposed 2017 government-funded budget. The analysis seeks to identify budget allocation and expenditure patterns and show the relationship between total expenditures and economic growth. While focusing on these two key government spending sectors, the report provides a useful perspective on the current state of social sector spending in the

Territory and might serve as a guide to improve education and health, and enable efficiencies and greater impact. The report is not, however, a study of performance measures or efficiencies, nor is it a comprehensive evaluation of social and economic impact stimulated by government spending.

RECENT USVI TOTAL GOVERNMENT SPENDING

Before examining public expenditure on education and health, we take a brief look at public expenditure on social services by examining the amount allocated as a percentage of total budgetary expenditure and as a percentage of Gross Domestic Product (GDP). From fiscal years (FY) 2014–2017 the USVI total government spending averaged $1.3 billion. Figure 1.0 shows where government spending in 2014-2017 was allocated, by function. Based on the expenditure data by economic function, about 42% was devoted to social services – education, health, hospitals and human services. The biggest of these, education, accounted for 15% of total government budgeted spending, 13% for hospitals, 10% for human services and 4% for health. Government spending on the social sectors (health, education and social welfare) represents about 18% of GDP.

FIGURE 1.0. USVI GOVERNMENT SPENDING BY FUNCTION, FY 2014-2017

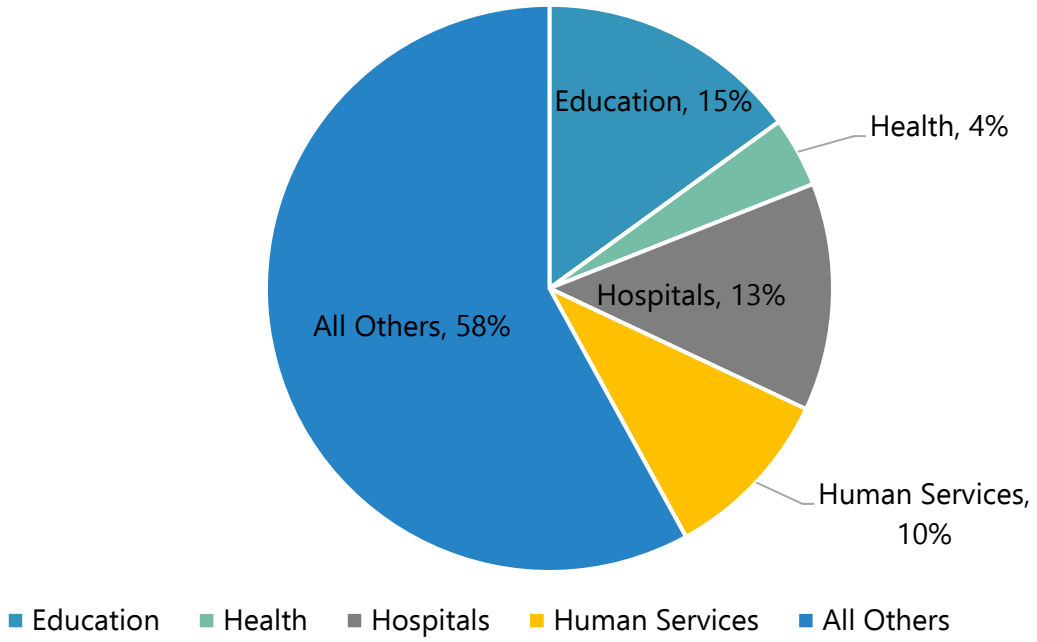
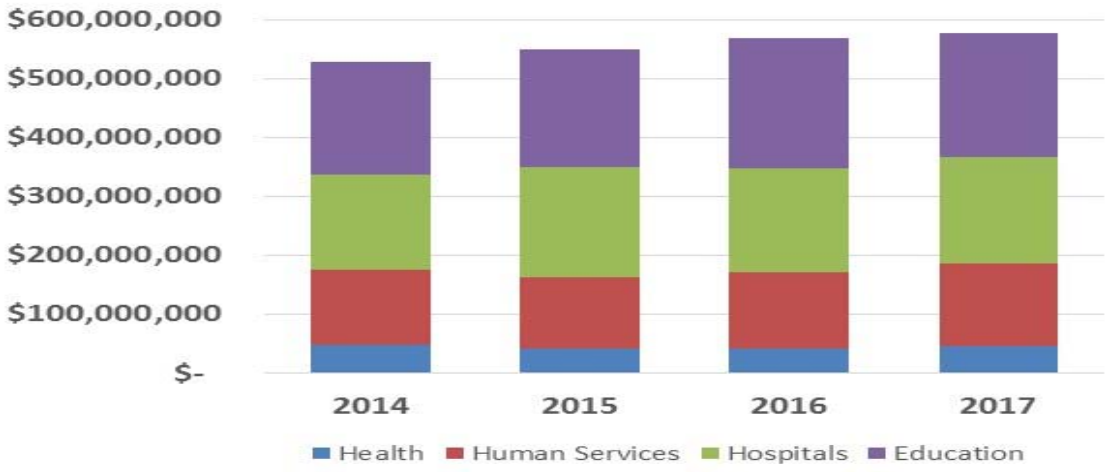


Figure 1.1 shows how public spending on the four social sector areas has changed over time. Over the last four fiscal years (2014-2017), total government expenditures on social services, local and federal, exhibited a generally rising trend from $528.1 million in FY 2014 to $577.2 million in FY 2017 or a 2% annual average increase.

FIGURE 1.1. TRENDS IN GOVERNMENT SPENDING FOR SELECTED CATEGORIES, FY 2014-2017



Source: Department of Finance
FY 2014-15 actuals, FY 2016 approved, and FY 2017 recommended expenditures

PUBLIC EXPENDITURE ON EDUCATION

As the largest governmental entity in the (USVI), the Department of Education (DOE) is charged with a variety of responsibilities including the development, implementation and monitoring of instructional programs inclusive of Special Education, Bilingual Education, Adult, Career/Technical Education, and Cultural Education. Additionally, the Department is responsible for the maintenance of its educational facilities and support services such as child nutrition, pupil transportation, and library-media services to both public and non-public schools.

The amounts of general government budgets committed to education rose steadily from $191 million in 2014 to $209 million appropriated for 2017 (Table 1.0). Education spending, as a percentage of total government spending, remained relatively steady between 15% and 17% for the past four years. The USVI real GDP is an estimated $3.1 billion (US Bureau of Economic Analysis, 2015). Accordingly, education spending as a percentage of GDP is about 7%. Comparatively, 15% of US total government spending in 2017 is earmarked for education. As a percent of US GDP, education spending is 6%.

TABLE 1.0. OVERVIEW OF DEPARTMENT OF EDUCATION BUDGETS FROM 2014 TO 2017

Department of Education	2014	2015	2016	2017 (prop)
General Funds	$163,249,088	$150,898,431	$159,959,102	$167,050,830
Non-attributed	$3,981,722	$4,668,089	$8,909,936	$4,208,615
Federal Funds	$24,607,952	$45,496,244	$42,568,932	$38,150,595
Totals	**$191,838,762**	**$201,062,764**	**$211,437,970**	**$209,410,040**

An average 79% of education budget came from the General Fund and 19% came from the federal funds. The 2015 budget saw a very significant increase of 85% of the federal share (Table 1.1). Since then, the budgets have remained somewhat constant. An average increase of 5% from General Funds over the last two years is in keeping with inflation. The federal share of education's budget, however has seen a slight decline of 5% between 2015 and 2016 and an estimated 10% between 2016 and 2017.

TABLE 1.1: CHANGES IN DEPARTMENT OF EDUCATION BUDGETS FROM 2014 TO 2017

Total Funding	2014-2015	2015-2016	2016-2017	2015-2017
General Funds	-8%	6%	4%	11%
1. Personnel	-8%	3%	6%	9%
2. Fringe	-4%	15%	7%	23%
3. Operational	-10%	4%	-4%	1%
Non-attributed	17%	91%	-53%	-10%
Federal Funds	85%	-6%	-10%	-16%
1. Personnel	106%	-12%	-26%	-35%
2. Fringe	66%	2%	-7%	-5%
3. Operational	78%	-5%	-3%	-7%
Totals	**5%**	**5%**	**-1%**	**4%**

PUBLIC EXPENDITURE ON HEALTH

The Department of Health (DOH), which was established under Title 3, Chapter 23 and Title 19 of the Virgin Islands Code, has direct responsibility for conducting programs of preventive medicine to protect the health of residents. The DOH has the authority to enforce all statutes pertaining to public health for the prevention and suppression of disease and injury. DOH states its mission as "to reduce health risks, ensure access to quality health care and enforce health standards." The DOH is also responsible for planning and coordinating health resources throughout the Territory, inclusive of licensure and regulation of the Territory's hospitals, in and out-patient health facilities, nursing homes, and community clinics.

Health spending was fairly constant between 2014 and 2017, about $48 million in 2014 to $47 million appropriated for 2017 (Table 1.2), or 3% to 4% of total government expenditures for the past four years. Health spending as a percentage of GDP is just over 1%. For the US, 22% of total government spending in 2017 is earmarked for health. As a percent of US GDP, health is 8%.

TABLE 1.2. DISTRIBUTION OF FUNDING

Department of Health	2014	2015	2016	2017 (prop)
General Funds	$26,132,501	$19,440,258	$19,880,357	$23,346,530
Health Revolving Fund	$1,573,086	$2,504,561	$2,554,707	$2,554,707
Non-attributed	$1,083,511	$1,246,368	$1,132,092	$1,029,235
Federal Funds	$19,064,520	$16,747,377	$19,718,448	$19,718,448
Totals	**$47,853,618**	**$39,938,564**	**$43,285,604**	**$46,648,920**

The Department of Health budget saw a significant drop of 17% between 2014 and 2015. It saw a 26% drop in General Fund dollars and a corresponding 12% drop in Federal funds (Table 1.3). Budget year 2015, however, seems to be the low point. Since then, budgets have been increasing at both the local and federal levels. The Federal share of the budget increased by 18% from 2015 to 2016 but is expected to remain constant between 2016 and 2017. The 2017 proposed General Fund budget increase will bring appropriations back to the 2014 levels. This includes a 10% increase in personnel costs. Operating costs saw a decrease between 2015 and 2016 of 20%. This deficit is mitigated in the proposed 2017 budget as well.

TABLE 1.3. CHANGES IN DEPARTMENT OF HEALTH BUDGETS BETWEEN 2014 AND 2017

Department of Health	2014-2015	2015-2016	2016-2017	2015-2017
General Funds	-26%	2%	17%	20%
1. Personnel	-12%	5%	10%	16%
2. Fringe	-8%	16%	4%	21%
3. Operating	-54%	-20%	64%	31%
Health Revolving Fund	59%	2%	0%	2%
Non-attributed	15%	-9%	-9%	-17%
Federal Funds	-12%	18%	0%	18%
1. Personnel	-13%	33%	0%	33%
2. Fringe	-6%	35%	0%	35%
3. Operating	-13%	8%	0%	8%
Totals	**-17%**	**8%**	**8%**	**17%**

SECTION 2. TRACEABILITY: THE MONEY TRAIL

This section looks at how the budget is being allocated as well as the sources. One of the indicators for good governance is the makeup of the budget. In other words, can local government induce matching funds from alternate sources? These alternate sources include federal aid, non-profit and foundation grants and private sector investments. For purposes of the detailed assessment, we looked at Post Audit reports and evaluated spending in 2015 and 2016 depending on availability of data.

EDUCATION

We use FY 2015 budget to illustrate the distribution of funding and where the money goes. General Fund appropriations were matched by an additional 31% in additional funds. This is a significant fact when ascertaining the overall impact of government spending. In other words, for every one dollar in General Fund allocations, the DOE received $0.31 in additional funding, i.e., the ratio of General Fund to additional funding is 1:0.31.

TABLE 2.0. DISTRIBUTION OF FUNDING

Funding Sources	Total Amount	Percentage of Total
General Funds	$150,898,431	75%
Non-attributed	$4,668,089	2%
Federal Funds	$45,496,244	23%
Totals	**$201,062,764**	

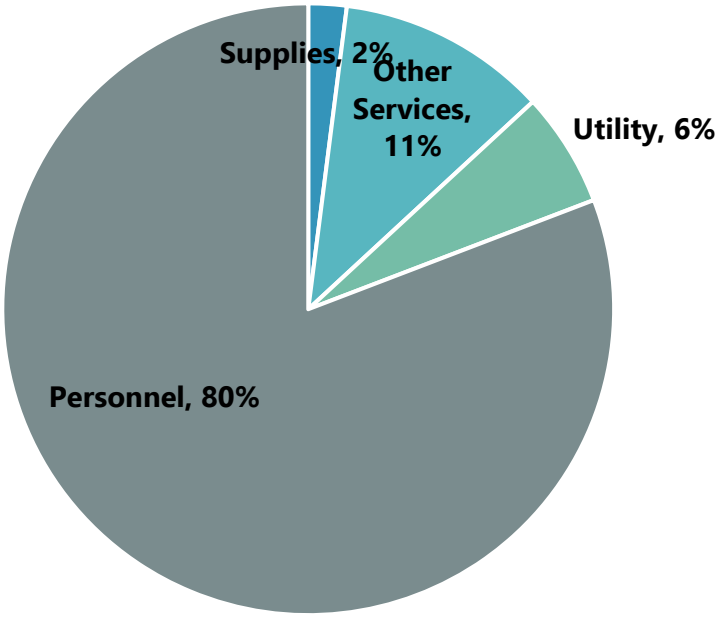
TOTAL EDUCATION EXPENDITURES

Education expenditures in 2015 from all sources (local and federal) have been analyzed by economic classification (salaries, other services, utility etc.). Overall, personnel services and fringe benefits accounted for 80% of total education spending (Figure 2.1). The next largest spending items were other services and charges 11.4% and utility 6%. Supplies accounted for a relatively small portion, only 2% of total spending.

TABLE 2.1. TOTAL 2015 EXPENDITURES- ALL SOURCES

Expenditure Category	Total Amount	Percentage of Total
Personnel Services	$87,641,002	56.3%
Fringe Benefits	$36,987,834	23.8%
Supplies	$3,241,140	2.1%
Other Services & Charges	$17,740,470	11.4%
Utility Services	$9,892,121	6.4%
Capital Projects	$63,953	0.0%
Total	**$155,566,520**	

FIGURE 2.0. EDUCATION SPENDING CATEGORIES AS A SHARE OF TOTAL SPENDING, 2015



GENERAL FUND EXPENDITURES

A total of $150,898,431 was distributed from the General Fund as shown in Table 10. The General Fund supported 97% of all expenditures, an additional 3% comes from non-appropriated funds. In addition to general expenditures, the DOE received approximately $45.5 million in Federal grants for specific program activities such as food and nutrition assistance and special needs (these fund expenditures are not included in general expenditures reported in Table 2.1).

TABLE 2.2. 2015 GENERAL FUND EXPENDITURES

Expenditure Category	Total Amount	Percentage of Total
Personnel Services	$86,600,223	57.4%
Fringe Benefits	$36,609,947	24.3%
Supplies	$2,102,825	1.4%
Other Services & Charges	$15,693,315	10.4%
Utility Services	$9,892,121	6.6%
Total	**$150,898,431**	

As is noted from Table 2.3 and Figure 2.1, about 82% of General Funds are used for personnel services and fringe benefits. The next significant funding category is other services and charges at 10%. A breakdown in spending for this category can be seen in Table 2.3.

FIGURE 2.1. EDUCATION SPENDING CATEGORIES AS A SHARE OF GENERAL FUND SPENDING, 2015

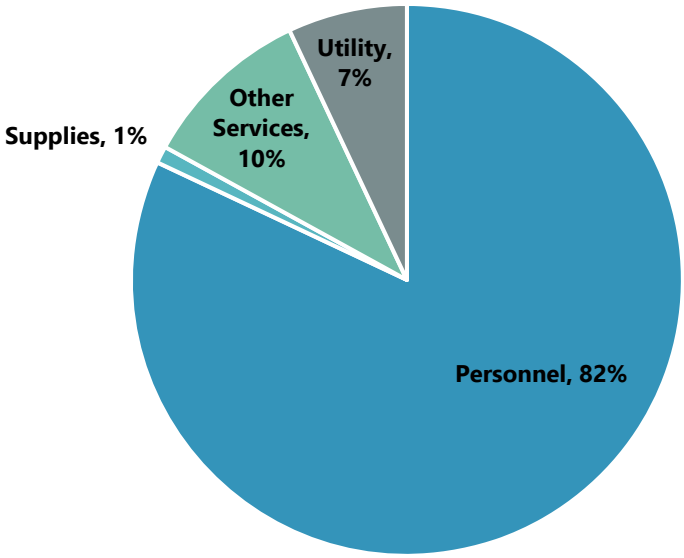


TABLE 2.3. 2015 EXPENDITURES IN OTHER SERVICES AND CHARGES

Other Services and Charges	Total Amount	Percentage of Total
Professional Services	$9,795,898	62.4%
Communication	$610,756	3.9%
Advertising & Promotion	$20,111	0.1%
Printing & Binding	$22,085	0.1%
Repairs & Maintenance	$2,963,644	18.9%
Travel	$129,418	0.8%
Transport-Not Travel	$90,239	0.6%
Automotive Repair and Maintenance	$60,055	0.4%
Rentals of Machines/Equipment	$2,371	0.0%
Rental of Land/Building	$164,807	1.1%
Training	$711,582	4.5%
Vehicle Supplies	$402	0.0%
Security Services	$894,542	5.7%
Other Services NOC	$227,406	1.4%
Total	**$15,693,316**	

Since 62% of the spending in the Other Services and charges is for Professional Services, it would be interesting to know if these services were provided by professionals residing in the USVI. The multiplier effect for services provided by USVI residents is greater than those provided by external contractors.

JOB CREATION

The DOE had 2,346 full time employees. The General Fund (Table 2.4) created and supported 2,080 of these full-time employees (90%). In addition to these direct jobs, 266 additional full time jobs are generated within the DOE (Table 2.5).

FUNDING TO JOB RATIO

One job is generated for every $64,320 in General Funds.

TABLE 2.4. EMPLOYEES FUNDED ON GENERAL FUND

Personnel Summary	FTE	Amount	Average Wages
Unclassified Positions	63.36	$4,164,206	$65,723
Classified Positions	2016.36	$80,536,117	$39,941
Total	**2,079.72**	**$84,700,323**	

TABLE 2.5. EMPLOYEES FUNDED ON NON APPROPRIATED AND FEDERAL FUNDS

Personnel Summary	FTE	Amount	Average Wages
Unclassified Positions	36.64	$2,102,153	$57,373
Classified Positions	229.7	$7,461,552	$32,484
Total	**266.34**	**$9,563,705**	

COMMON SPENDING BENCHMARKS

Some of the most common government spending benchmarks for the public sector are based on total population subset served by that service and GDP. In the case of Education, the population served would be students. USVI had 17,822 students in 2015 and 17,235 students in 2016 with an average student to teacher ratio of 15:1.

TABLE 2.6. COST PER STUDENT

Funding	2015	2016
General Fund	$8,567	$9,281
All Funds	$8,729	$9,789

These expenditures per pupil are lower than the national average cost $11,009 in 2015 and $12,296 in 2016 per student.

HEALTH

As can be seen from Table 2.7, there was a total funding of $39, 938,566. General Fund were matched on a 1:1 ratio with additional funds. This is a significant fact when ascertaining the overall impact of Government spending. In other words, for every one dollar in General Fund allocations, the DOH received $1 in additional funding.

TOTAL HEALTH EXPENDITURES

Health expenditures in 2015 from all sources was $39, 938,566.Other Funds accounted for 9% of total education spending and Federal Funds were 42% (Table 2.7)

TABLE 2.7. DISTRIBUTION OF FUNDING

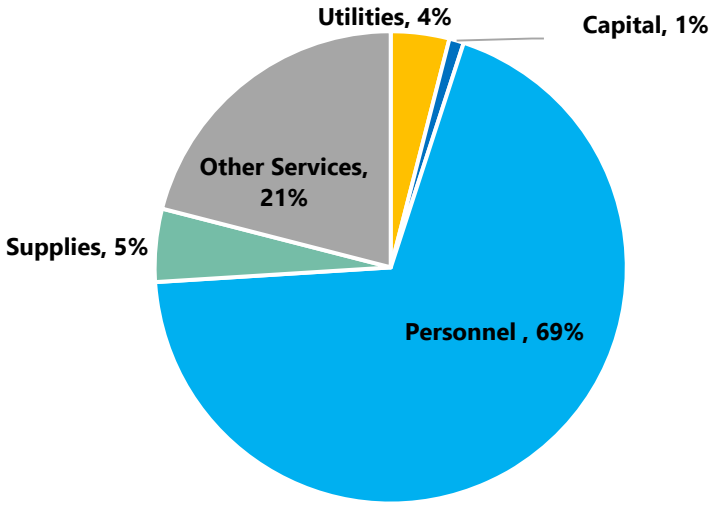
Fund Sources	Total Amounts	Percentage of Total
General Funds	$19,440,259	49%
Other Funds (HRF, ICF &ES)	$3,750,930	9%
Federal Funds	$16,747,377	42%
Total	**$39,938,566**	

Health expenditures by category from all sources (local and federal) are given in Table 2.8. Personnel services and fringe benefits accounted for 69% of total education spending (Figure 2.1). Other services and charges 21%, supplies 5%, utility 4%, and capital projects just 1%).

TABLE 2.8: TOTAL 2015 EXPENDITURES- ALL SOURCES

Expenditure Category	Total Amount	Percentage of Total
Personnel Services	$11,465,609	49%
Fringe Benefits	$4,522,545	20%
Supplies	$1,105,372	5%
Other Services & Charges	$4,837,174	21%
Utility Services	$1,018,764	4%
Capital Projects	$241,725	1%
Total	**$23,191,189**	

FIGURE 2.2. HEALTH SPENDING CATEGORIES AS A SHARE OF TOTAL SPENDING, 2015 GENERAL FUND



A total of $19,440,258 was contributed from the General Fund or 84% of these funds (Table 2.9). An additional 10% came from the Health Revolving Fund and 6% from non-appropriated funds such as the Indirect Cost Fund and the Emergency Services Fund. All these funds together made up 58% of the DOH budget. The remaining 42% was attributed to $16,747,377 in federal grants.

Funding Ratio: General Fund to Additional Funding: 1:1

TABLE 2.9. 2015 GENERAL FUND EXPENDITURES

Expenditure Category	Total Amount	Percentage of Total
Personnel Services	$11,037,822	56.8%
Fringe Benefits	$4,366,136	22.5%
Supplies	$377,609	1.9%
Other Services & Charges	$2,819,684	14.5%
Utility Services	$799,947	4.1%
Capital Projects	$39,061	0.2%
Total	$19,440,259	

As can be noted from the table above 79% of General Funds were used for personnel services and fringe benefits associated with the personnel. The next significant funding category is other services and charges at 15%. A breakdown in spending for this category can be seen in Table 2.10.

Since 80% of the spending in this category is for Professional Services category, it would be interesting to know if these services were provided by professionals residing in the USVI. The multiplier effect for services provided by USVI residents is greater than those provided by external contractors.

TABLE 2.10. EXPENDITURES IN OTHER SERVICES AND CHARGES

Other Services and Charges	Total Amount	Percentage of Total
Professional Services	$2,254,441	80.0%
Communication	$87,252	3.1%
Travel	$22,344	0.8%
Training	$1,881	0.1%
Advertising & Promotion	$24,709	0.9%
Printing & Binding	$16,200	0.6%
Public Utility Services	$129,356	4.6%
Transportation Not Travel	$11,413	0.4%
Insurance	$40,593	1.4%
Repairs & Maintenance	$11,449	0.4%
Rental – Land/Building	$216,364	7.7%
Late Payments Land/Building	$1,354	0.0%
Rental - Machines/Equipment	$1,089	0.0%
Automotive Repair & Maintenance	$1,240	0.0%
Total	**$2,819,685**	

JOB CREATION

The DOH had 402 full time employees and an additional 30 part time employees. The general fund creates and supports 266 of these full-time employees (66%) and 12 part-time employees (40%). In addition to these direct jobs, 136 additional full time jobs and 18 additional part time jobs are generated within the DOH (Table 2.11).

TABLE 2.11. EMPLOYEES FUNDED ON GENERAL FUND

Personnel Summary	FTE	Amount	Average Wages
Unclassified Positions	34.68	$1,890,350	$54,508.36
Classified Positions	231.57	$9,385,510	$40,529.90
Part Time	11.88	$373,282	$31,421.04
Total	**278.13**	**11,649,142**	

TABLE 2.12. EMPLOYEES FUNDED ON INDIRECT COST FUND AND FEDERAL FUNDS

Personnel Summary	FTE	Amount	Average Wages
Unclassified Positions	35.32	$2,036,339	$57,653.99
Classified Positions	100.43	$4,160,184	$41,423.72
Part Time	18.12	$298,220	$16,458.06
Total	**153.87**	**6,196,523**	

FUNDING TO JOB RATIO

One job is generated for every $45,000 in General Funds.

SECTION 3. PUBLIC INVESTMENT AND ECONOMIC GROWTH

In previous sections of this report we looked at revenues and expenditures within the two sectors of public education and public health. The following section looks at the impact of investment in these sectors and economic growth of the Territory.

From the economic point of view, the difference between public and private goods is the fact that public goods are non-rival and nonexclusive. That is, if a public good is provided, no one can be excluded, and the marginal cost of supplying the good to an additional consumer is zero, no matter what the level of production. A good is not exclusive when it is impossible to prevent people from using it. In the area of health services, an example of a public good would be a campaign to foster proper eating habits.

Economic growth is influenced by many factors such as human capital, physical infrastructure, capital infusion, technology, natural resources, regulation and business climate. One can argue that human capital is the single greatest asset for economic growth. If we take that stance, three things impact the quality of human capital: education, health and livability or quality of life.

EDUCATION

Investment in Education is often said to be one of the most significant investments in economic growth and sustainability. The recent economic recession demonstrated in unfortunate and powerful ways the connection between education and employment. The recession had the greatest impact on individuals with lower levels of education attainment. In 2009, the unemployment rate was much lower and average earnings were higher for individuals who did not drop out of high school and had achieved some level of college education. The gaps in employment and earnings have increased during the recession based on race and level of educational attainment. When *The New York Times* reported on these trends for metropolitan areas in different states, it found that a "social multiplier" greatly exacerbated the impact of education levels on unemployment for communities with high concentrations of less educated individuals. Unemployment rates were 80% higher on average than expected in cities with low levels of

high school and college graduates. The Harvard University professor conducting this analysis concluded, "The fact that education has mattered so much during this recession only reminds us that America's future depends on its human capital."

Research over many decades has documented the benefits of education for employment and economic growth. In fact, the expansion of universal high school education in the United States between 1915 and the late 1950s explains beyond any other "factor … the economic dominance of the United States in the 20th century" relative to other nations.

Educational achievement has dramatic economic benefits for individuals. Graduating from high school has historically been an important indicator for employers that a person is ready to hold a job. Even today, high school dropouts are more than twice as likely to be unemployed than people who have attended college. Receiving a quality K-12 education has also become increasingly important for college preparation. In recent years, college education beyond high school has become essential as higher level knowledge and skills are required by 21st century jobs in an international economy. The relative economic value of a high school diploma by itself – without higher education – has actually decreased over time as more people have access to and complete college. The issue of quality education has therefore become a societal human resources issue. This operates on the individual level in terms of preparing youth for higher education and employment. The private, personal benefits of having a good, stable job then combine to create broader social and economic benefits.

For example, employment is linked to better health because most Americans gain access to health insurance through their employer. The health benefits of education also occur because better educated people tend to have more stable employment, which reduces life stressors and risk factors that negatively affect health. More stable employment is linked to reduced likelihood of committing crime and reduced need for public assistance programs supported by tax revenue. Because dropouts have so many fewer employment opportunities, the ripple effect of their disadvantage costs the nation billions of dollars in lost tax revenue and in welfare, unemployment, and crime prevention programs.

Government support for public education is thus crucial for individual employment, the broad creation of human capital, and overall economic growth. Policies that boost government investment in education can help reduce income inequality while expanding economic opportunity. States that invest more in public education eventually reduce levels of income inequality between residents. One report predicts that economic growth will continue to be uneven because of local differences in educational opportunity. Reduced government expenditures for welfare programs are a powerful example of the significant employment and economic benefits of quality education. Participation in cash assistance programs is highest among individuals with the lowest levels of education. In 1992, high school dropouts were three times more likely to receive income from public assistance than high school graduates who did not go on to college–17% versus 6%. Between 1972 and 1992, both high school dropouts and graduates who did not go on to college were more likely to receive public assistance.

Graduating from high school and improved employment opportunities have significant positive effects, even in normally at-risk populations. For example, single mothers with a high school diploma are 24 to 55% less likely to receive public assistance than single mothers who drop out. Helping all single mothers to graduate from high school would result in an annual national savings of $1.5 to $3.5 billion in public assistance alone. The savings in government expenditures are even greater when other low-income assistance programs are considered. Improving education outcomes could result in national savings between $7.9 and $10.8 billion annually in public assistance, food stamps, and housing assistance.

A study by the Pennsylvania Department of Education states that "investments in quality pre-kindergarten programming conservatively yield a return of $7 for every taxpayer dollar invested." And when the benefits of increased tax revenue are combined with reduced welfare spending, investment in quality pre-kindergarten programs return up to $17 for every dollar spent. From a national perspective, "[d]ecreasing the number of high school dropouts by half would produce $45 billion per year in net economic benefit to society."

HEALTH

Literature shows that healthy societies are more likely to see stable economic growth and performance. Investment in public health reduces hunger, reduces child and infant mortality, increases life expectancy and combats serious diseases. The following points are frequently quoted in the literature.

- A population's individual and collective health status affects a nation's economic development and performance.
- Health human capital generates both higher income and individual well-being
- Health impacts long-term development, economic growth, and poverty reduction
- Evidence of quantitative effect of better health on labor productivity and wages (one year improvement in life expectancy translates to 4% increase in output)
- Improvements in health may increase output not only through labor productivity, but also through the accumulation of capital.
- Health is estimated to be responsible for one-third of long term economic growth.
- Promotion of technological innovation.
- Improved environment for investment.
- Improved market expansion.

EDUCATION, HEALTH AND ECONOMIC GROWTH IN THE USVI

In addition to the general literature that effectively links education and health to economic growth, this section looks at the multiplier effect of public investments in the Departments of Education and Health as they circulate through the economy in general and the impact beyond the two Departments.

CONSUMER EXPENDITURES AND PAYROLL

It is estimated that 80% of one's salary is circulate through the local economy. Consumer expenditure surveys indicate much of this spending goes toward housing costs (39%), general goods and services

(18%), food (13%) and transportation (11%). All of these major categories are local expenditures and will have additional indirect and induced job and income multipliers throughout the local economy (Table 3.0).

TABLE 3.0. CONSUMER SPENDING FOR DEPARTMENT OF EDUCATION EMPLOYEES

Department of Education Item Category	Percent of Average Annual Expenditures	Total Estimated Annual Expenditures
Food	13%	$10,651,006
Housing	39%	$31,953,017
Apparel	2%	$1,638,616
Transportation	11%	$9,012,389
Health Care	6%	$4,915,849
Entertainment and Recreation	4%	$3,277,232
Education	7%	$5,735,157
Miscellaneous goods and services	18%	$14,747,546
TOTAL	**100%**	**$81,930,812**

ECONOMIC IMPACT OF EDUCATION EXPENDITURES 2016

Every dollar in payroll and every job in the economic network has multiple effects. The direct impact is the jobs and income at its starting industry or base. In addition to the direct impact, there is an indirect impact caused by a "multiplier effect". The multiplier is based on local interactions between employment sectors and is dependent on the economic networks and interactions in the USVI.

TABLE 3.1. TOTAL INDIRECT IMPACT

Impact Type	Employment	Labor Income	Total Value Added
Indirect Impact	298	$11,470,500	$28,339,767

Government spending within the education sector triggered an additional 298 jobs, an additional $11.47 million in payroll with $28 million in value added receipts. The two most indirectly impacted sectors are restaurants and retail services (Table 3.1).

TABLE 3.2. TOP TEN SECTORS INDIRECTLY IMPACTED

Description	Total Employment	Total Labor Income	Total Value Added
Full-service restaurants	24.3	$518,750	$555,227
Limited-service restaurants	21.6	$391,021	$953,788
Retail - Food and beverage stores	19.5	$484,045	$805,459
Retail - General merchandise stores	17.1	$332,117	$501,021
Real estate	13.9	$655,569	$2,287,199
Offices of physicians	13.9	$934,305	$1,036,043
Retail - Motor vehicle and parts dealers	11.1	$460,915	$763,160
Wholesale trade	9.5	$774,461	$462,033
Retail - Building material and garden equipment and supplies stores	7.5	$248,134	$391,745
Labor and civic organizations	7.4	$249,659	$316,016

ECONOMIC IMPACT OF HEALTH EXPENDITURES 2016

TABLE 3.3. CONSUMER SPENDING FOR DEPARTMENT OF HEALTH EMPLOYEES

Department of Health Item Category	Percent of Average Annual Expenditures	Total Estimated Annual Expenditures
Food	13	$1,836,061
Housing	39	$5,508,184
Apparel	2	$282,471
Transportation	11	$1,553,590
Health Care	6	$847,413
Entertainment and Recreation	4	$564,942
Education	7	$988,648
Miscellaneous goods and services	18	$2,542,239
TOTAL	**100**	**$14,123,548**

TABLE 3.4. TOTAL INDIRECT IMPACT

Impact Type	Employment	Labor Income	Total Value Added
Indirect Impact	50	$1,935,253	$4,781,360

Government spending within the Health Sector triggers an additional 50 jobs, an additional $1.9 million in payroll with $4.7 million in value added receipts (Table 3.4). The two most indirectly impacted sectors are restaurants and retail services (Table 3.5).

INDIRECT IMPACT OF EMPLOYEE COMPENSATION

TABLE 3.5. TOP TEN SECTORS INDIRECTLY IMPACTED

Description	Total Employment	Total Labor Income	Total Value Added
Full-service restaurants	4.1	87,521	93,676
Limited-service restaurants	3.6	65,971	160,919
Retail - Food and beverage stores	3.3	81,666	135,894
Retail - General merchandise stores	2.9	56,033	84,530
Real estate	2.3	110,605	385,886
Offices of physicians	2.3	157,632	174,797
Retail - Motor vehicle and parts dealers	1.9	77,764	128,757
Wholesale trade	1.6	130,664	77,952
Retail - Building material and garden equipment and supplies stores	1.3	41,864	66,094
Labor and civic organizations	1.2	42,121	53,317

PERFORMANCE MONITORING AND INDICATORS FOR PUBLIC SERVICE AGENCIES

Public policies and expenditures have a direct impact on the access and quality of public services. Tax payers fund many of these public expenditures and often want to know how their tax dollars are being spent. Governments also want to know the efficacy of their policies and spending. While public goods such as health and safety cannot be judged via profit margins, they can be benchmarked against standard practices and tracked for improved performance. Many governments are interested in performance benchmarking as a way to be transparent and responsive to the needs of their constituents.

In addition to impacts on public sector, government initiatives, policies and expenditures have a significant impact on the economy, private businesses and entrepreneurs. Private industry and businesses are impacted by the public sector in several ways. The first is direct impacts through taxes and government grants and subsidies. Secondly, indirect impacts of government policies on private business and enterprise can be experienced (living wage mandate, business friendly permitting practices, and small business support initiatives). Finally, private sector businesses are impacted by any public sector initiatives and services that affect their workforce (education and training programs, public health and safety) and their assets (public infrastructure such as water, sewer, roads, energy, waste disposal, telecommunication, police and fire safety, etc.).

Direct impacts are relatively easy to measure. Did public subsidy initiate further private investment? Did subsidies create jobs? Did subsidies improve income and wages for its citizens? Indirect and induced impacts are harder to measure as the definition of 'success' or 'bottom-line' are affected by many factors including, but not limited to, public sector initiatives. As such it is difficult to attribute a percent of business growth, and employment, to public initiatives.

It is not surprising that there is an increasing interest since the 1990s of performance monitoring, which records, analyses and publishes data in order to give the public a better idea of how government policies change the public services and to improve their effectiveness. Performance monitoring done well is broadly productive for those concerned. Done badly, it can be very costly and not merely ineffective but harmful and indeed destructive. Performance indicators for public services have typically been designed to assess the impact of government policies on those services, or to identify well performing or under-performing institutions and agencies.

Performance measurement has been studied and determined to be of value by governments of many different levels and jurisdictions. While many local municipalities have adopted some version of performance measurement, few have incorporated a performance-measurement management strategy that is consistent with and linked to the strategic goals of the municipality. To be of value, performance measurement, as a system for effectively evaluating the delivery of public services, must be configured in a way that not only measures individual municipal performance but offers a benchmarking utility for comparative analysis and decision-making. With the growth of the use of performance measures, some

researchers sense an emergent public skepticism regarding the effectiveness of performance measurement systems.

The crux of this growing skepticism appears to be the lack of unified measures, consistent application, linkage to strategic goals, and methods for evaluating the cost effectiveness of performance measurement systems. This criticism may abate if unified performance standards are consistently applied across key performance areas within like-sized municipalities and researchers focus on pre-implementation expectations and goals.

Especially because of the government's role, performance monitoring must be done with integrity and shielded from undue political influence. It is in everyone's interest that government officials, agencies, the professions, practitioners and the wider public can have confidence in the performance monitoring process, and find the conclusions from it convincing. Procedures for data collection, analysis, presentation of uncertainty and adjustment for context, together with dissemination rules, should be explicitly defined and reflect good statistical practice. Because of their usually tentative nature, Indicators should be seen as 'screening devices' and not over-interpreted. If quantitative performance targets are to be set, they need to have a sound basis, take account of prior (and emerging) knowledge about key sources of variation, and be integral to the performance monitoring design. Aspirational targets have a distinctive role, but one which is largely irrelevant in the design of a performance monitoring procedure; motivational targets which are not rationally based may demoralize and distort.

DEVELOPING PERFORMANCE INDICATORS

An indicator is a measure or a set of measures that describes a complex social, economic, or physical reality. A measure is one data point that acts as a gauge to tell us how well or poorly we are doing with respect to an indicator. Measures use quantifiable data, preferably collected over time, to identify trends, and assess whether conditions are improving, staying steady or deteriorating. Measures used will change over time to reflect relevance, availability of new data and developments in society.

Criteria used to select measures include:

- *Relevance and Impact* – is the indicator associated with one or more issues which people care about and which have meaningful policy impacts?
- *Validity and Availability* – are the measures objective, statistically defensible and credible? Are the data verifiable and easily and affordably reproducible for future reports?
- *Simplicity* – are the measures appealing and understandable to the general public and to policy makers?
- *Ability to Aggregate Information* – does the measure contribute to the understanding of the important or broader issue expressed by the indicator? For practical reasons, indicators that aggregate information on broader issues are preferred.
- *Ability to Reflect Trends – in order to understand and determine long-term impacts, can the data reflect trends over time? Are time-series data available?*

Once the Indicators are defined, we can create measures that can be applied to the selected public agency to create a baseline evaluation. Applied over time, the measures will provide a sense of how the agency is performing for any given indicator. Researchers can create the methods and guides to help agencies assess their performance over time and create evaluation and reporting criteria such that the government can monitor progress and gauge effectiveness of its investment strategy.

The USVI Health Department has already started adopting performance indicators in their 2015 Annual Report.

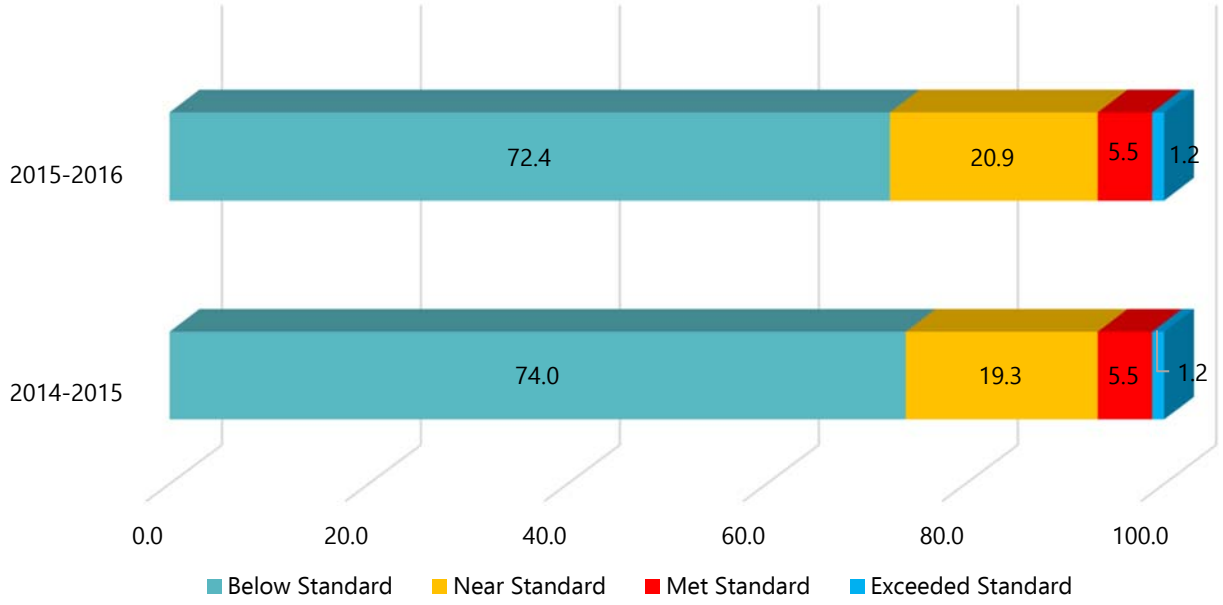
EXCERPT FROM THE DEPARTMENT OF HEALTH 2015 ANNUAL REPORT

Key Performance Indicators	FY 14 Actual	FY 15 Actual	FY 15 Target	FY 15 Target Met
Percentage of registered births reported	97%	97%	97%	√
Percentage of registered deaths reported	100%	100%	100%	√
Percentage of incidences of cancer reported as primary or secondary cause of death	97%	97%	97%	√
Certificate of Need (CON) applications completed within 90 days	70%	75%	75%	√
Allied Health Applications completed within 15 business days	82%	80%	75%	√
Licenses (Institutional, *locum tenens*) processed within five (5) business days	85%	95%	90%	√

The Department of Education also showcases two performance measures on its webpage.

MATHEMATICS

Percent of each students in each performance level, grades 3-8 and 11



ENGLISH LANGUAGE ARTS/LITERACY

Percent of students in each performance level, grades 3-8 and 11