The Washington Economics Group, Inc. ®

Brief

The FY-2020 Economic Development Impacts of the Institute for Commercialization of Florida Technology

Submitted to:

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Florida Institute COMMERCIALIZATION OF FLORIDA TECHNOLOGY

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Overview and Methodology

The Institute for Commercialization of Florida Technology (the Institute) generates significant and quantifiable impacts that benefited the economic development of the State of Florida each year throughout the last decade, underscoring the need for seed-stage funding for emerging growth companies.

This brief estimates the comprehensive economic development impacts over a 10-year period (FY-2011 to FY-2020) to the State of Florida from these activities and updates the previously-presented economic impacts through FY-2020.

The Institute is a key contributor to Florida's economic development, as evidenced by the quantifiable economic impacts presented in this update. The WEG analyzed the growing economic impacts over the past 10 years arising from the Institute's activities utilizing the professionally accepted and widely used IMPLAN *input-output* methodology presented in the form of Employment, Household Income, Gross Domestic Product (GDP), Total Economic Impact, and Fiscal Revenues.

The Institute supports innovation-based companies throughout Florida. These ongoing activities, combined with the Institute's operational activities, result in positive and increasing economic impacts to Florida while strengthening the Strategic Plan for Economic Development of the State. **However, the Institute generates economic impacts that extend beyond those *directly* related to these ongoing activities**. These "spillover" or multiplier impacts are the result of each business' supply relationships with other firms operating within Florida, the proportion of business value added[1] that accrues to households in the form of labor and capital income, and the propensity of households to spend income on goods produced within the local area.

Methodology

Economic models that explicitly account for inter-industry linkages (supply relationships), the generation of labor and capital income and the spending of household income have been used since the 1960's to estimate the contribution that a particular business or industry makes to the general economy. These "input-output" models recognize that as an industry experiences an increase in the demand for its products or services, it in turn needs more goods and services from its suppliers and must increase its purchases from other industries in the economy. The effect on regional production resulting from successive rounds of inter-industry linkages is referred to as the *indirect effects.* The resulting increases in regional production also lead to expansions in employment and Household

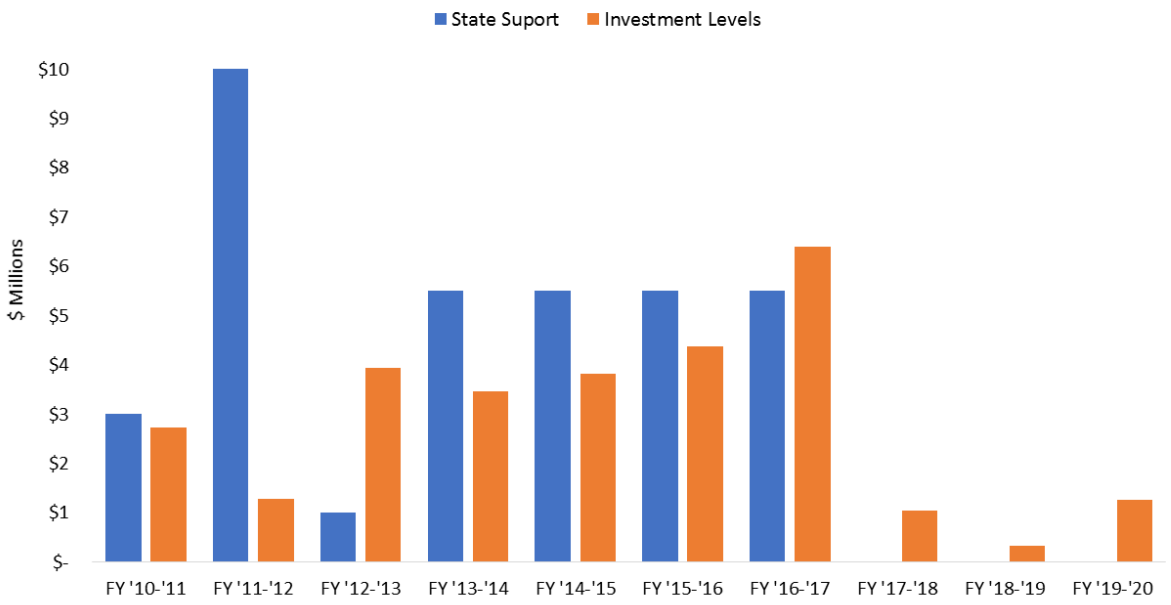
[1]"Value added" refers to the difference between business revenues and the cost of non-labor and non-capital inputs used to produce goods and/or services.

Income, and the increases in Household Income lead to increases in consumer spending, further expanding sales and production throughout the regional economy. The latter economic impacts are referred to as the *induced effects*. The successive waves of production, spending and more production result in *economic multiplier effects*, where the final or total increase in regional production, income and employment, respectively, is larger than the initial (or "*direct*") increase in production, income and employment. The total quantitative economic contribution of these activities, therefore, is comprised of a *direct effect*, an *indirect effect* and an *induced effect*.

The Institute provided information on their total expenditures as well as employment data for firms to whom the organization provided initial support and funding, and subsequently, assistance to support their ongoing expansion. Utilizing the *direct* economic impacts from each operating year from FY-2011 to FY-2020, the *indirect* and *induced* economic impacts of these recurring activities were calculated using an extended *input-output (I/O)* model of the State of Florida economy. These comprehensive economic impacts were then totaled and are presented in the sections that follow.

A substantial portion of the State appropriations has been invested in high-tech startup companies. It is important to note that the Institute has not received State support in the last three fiscal years but has continued to make investments in these companies from other funds. Figure 1 below shows the historical pattern of State support and Institute investment activities.

Figure 1. State Support for Institute Investments



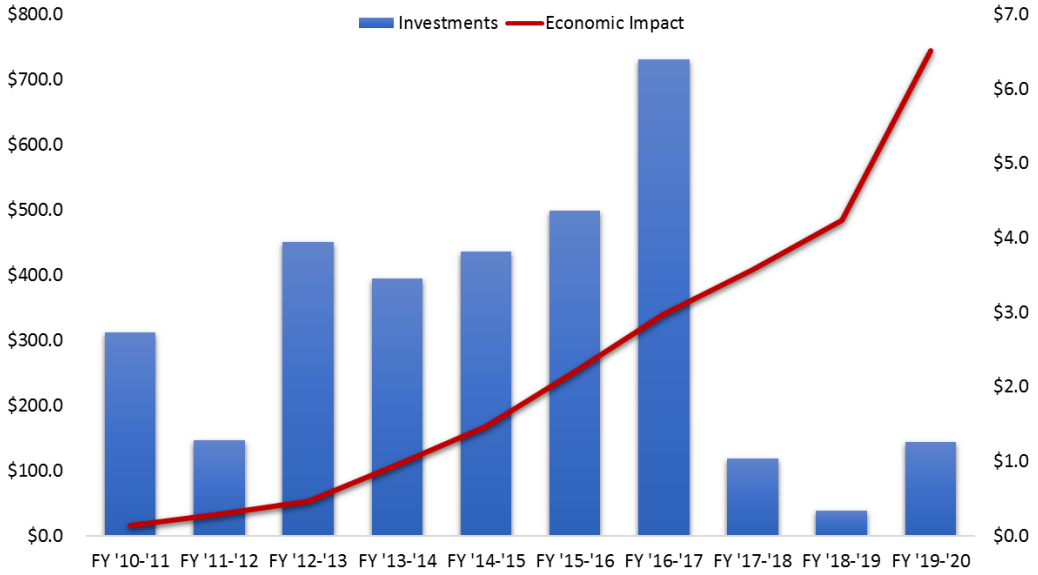
Source: The Washington Economics Group, Inc. (WEG)

Summary of the Economic Impacts

The Institute and funded companies' operations supported 91 jobs throughout the State in its first year (FY-2011). Since then, funded companies have grown with many generating significant revenues, especially within the high-wage, high-skill Knowledge-Based Services[2] sector of the Florida economy. This has resulted in an annual Total Economic Impact, which has been steadily increasing since FY-2011, due to the Institute's efforts in selecting and supporting companies established through the commercialization of public research. Funded companies raised in excess of $373 million between FY-2011 and FY-2020, **with almost $53 million in private funding being raised in FY-2020 alone**. By showcasing investment opportunities that were previously "below the radar", Institute programs have increased the amount of capital flowing to Florida businesses, with many of the successful funded companies attracting investment from global strategic partners.

With no State funding in the last three fiscal years, Institute funded companies continue to hire additional staff and raise private capital each year, underlining the importance of State appropriations for matching seed-stage capital. In FY 2019–20 the Total Economic Impact of these companies was $744 million, almost 21 times the 10-year cumulative State support of $36 million for the Institute's activities. This benefit is shown in Figure 2 below.

Figure 2. Institute Investment and Economic Impact



Source: The Washington Economics Group, Inc. (WEG)

[2]Major industries under this category are Software, Information Technologies, Life Sciences, Professional Administrative Services and Arts, Entertainment & Recreation, among others.

The Total Economic Impact of the Institute's operations and growth of funded companies in FY 2020 is **$744 million, a $ 259 million increase** from the Total Economic Impact of $485 million in FY-2019. The two main drivers of the significant increase are the growing economic value of the Institute funded companies and the expanding high-wage employment of these companies. The Total Economic Impact has been steadily increasing since FY-2011.

Throughout the ten-year period from FY-2011 to FY-2020, the Institute has contributed a cumulative total of just over $2.6 billion in Total Economic Impact to the State of Florida. Of this almost $2.6 billion Total Economic Impact, over 28 percent was generated in FY-2020 alone, demonstrating the growing success of the Institute in selecting startup firms for funding. These results are summarized in Tables 1 and 2 below.

Table 1. Summary of the Total Recurring Economic Impacts on Florida Arising from Institute Operations and the Funded Companies (FY-2011 to FY -2020)

Impact On:	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10-Year Total
Employment (Jobs)	91	211	343	683	1,144	1,618	2,214	2,636	3,136	3,994	**16,070**
Household Income ($MM)	$5	$13	$20	$41	$66	$95	$132	$159	$192	$250	**$973**
GDP (Value Added - $MM)	$8	$19	$30	$61	$88	$129	$176	$214	$257	$397	**$1,379**
Federal, State & Local Fiscal Revenues ($MM)	$2	$4	$6	$12	$20	$29	$40	$49	$59	$77	**$298**
Total Economic Impact ($MM)	$16	$33	$52	$109	$168	$251	$340	$408	$485	$744	**$2,606**

Note: Totals may not equal sum of all due to rounding.
Source: The Washington Economics Group, Inc. (WEG)

Table 2. Summary of the Total Recurring Economic Impacts on Florida Arising from Institute Operations and the Funded Companies – FY-2011 to FY-2019

Impact on:	FY-2011 to FY-2019	FY-2020	10-Year Total
Employment (Jobs)	12,076	3,994	16,070
Household Income ($ Millions)	$723	$250	$973
GDP (Value Added $ Millions)	$982	$397	$1,379
Federal, State & Local Fiscal Revenues ($ Millions)	$221	$77	$298
Total Economic Impact ($ Millions)	$1,862	$744	$2,606

Note: Totals may not equal the sum of all due to rounding.
Source: The Washington Economics Group, Inc. (WEG)

The Institute Contributes Significantly to Employment, Household Income and Gross Domestic Product (GDP) in the State of Florida

The Institute has a significant impact on Employment, Household Income and GDP (Value-Added) throughout the State. A majority of these impacts are created in the Knowledge-Based Services sector, which includes Software, Information Technologies, and Life Sciences. The jobs created in the Knowledge-Based Services sector have higher wages than the statewide average ($64,500 a year versus a statewide average of $50,000[3]), which support Florida's Strategic Plan for Economic Development.

Of the 3,994 in annual Employment supported in FY-2020, a significant 2,985 or almost 75 percent is created in the Knowledge-Based Services sector, followed by the Manufacturing and the Visitor Industry sectors. In FY-2020, of the annual $250 million generated in Household Income, over $200 million or 80 percent are created in the Knowledge-Based Services sector, followed by the Manufacturing and Wholesale Trade & Transportation Services sectors. Of the over $397 million of GDP impacts arising in FY-2020, $321 million or 81 percent are generated in the Knowledge-Based Services sector. The impact of this measure is followed by the Wholesale Trade & Transportation Services and Government & Other sectors as well. The results of the impacts on Employment, Household Income, and Gross Domestic Product (GDP) are summarized in the following Tables 3 through 5.

Table 3. Total Annual Employment Supported by Institute Operations and the Funded Companies (FY-2011 to FY-2020)

Industry	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10-Year Total
Knowledge-Based Services*	62	153	258	495	822	1,133	1,568	1,889	2,273	2,985	**11,638**
Manufacturing	10	18	23	57	95	151	194	220	246	262	**1,276**
Visitor Industry	4	10	16	33	67	93	129	153	182	212	**899**
Wholesale Trade & Transportation Services	5	10	14	31	63	95	124	142	160	166	**810**
Retail Trade	6	13	21	42	58	84	116	137	163	209	**849**
Government & Other	3	5	8	18	31	49	67	75	89	138	**483**
Construction	1	2	4	8	8	12	17	20	23	22	**117**
Total All Industries	**91**	**211**	**344**	**684**	**1,144**	**1,617**	**2,215**	**2,636**	**3,136**	**3,994**	**16,072**

Note: Totals may not equal sum of all due to rounding.
Source: The Washington Economics Group, Inc. (WEG)

[3] http://www.floridajobs.org/workforce-statistics/data-center/statistical-programs/quarterly-census-of-employment-and-wages

*Major industries under this category are Software, Information Technologies, Life Sciences, Professional Administrative Services and Arts, Entertainment & Recreation, among others.

Table 4. Household Income Created by Institute Operations and the Funded Companies (FY-2011 to FY-2020 - $ Thousands)

Industry	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10-Year Total
Knowledge-Based Services*	$3,661	$9,141	$15,261	$29,450	$49,352	$68,448	$97,119	$119,062	$146,627	$200,008	**$738,129**
Manufacturing	$826	$1,509	$1,918	$4,797	$6,186	$9,990	$12,848	$14,805	$16,442	$14,013	**$83,334**
Wholesale Trade & Transportation Services	$323	$621	$905	$2,029	$4,097	$6,251	$8,130	$9,307	$10,546	$10,770	**$52,979**
Government & Other	$268	$496	$716	$1,636	$2,662	$4,329	$5,719	$6,436	$7,310	$11,529	**$41,101**
Retail Trade	$193	$439	$695	$1,417	$1,832	$2,675	$3,712	$4,470	$5,369	$6,919	**$27,721**
Visitor Industry	$108	$254	$409	$817	$1,753	$2,366	$3,202	$3,821	$4,567	$5,457	**$22,754**
Construction	$65	$120	$186	$408	$424	$608	$791	$924	$1,074	$1,194	**$5,794**
Total All Industries	**$5,444**	**$12,580**	**$20,090**	**$40,554**	**$66,306**	**$94,667**	**$131,521**	**$158,825**	**$191,935**	**$249,890**	**$971,812**

Note: Totals may not equal sum of all due to rounding.
Source: The Washington Economics Group, Inc. (WEG)

Table 5. Gross Domestic Product (Value-Added) Impacts Arising from Institute Operations and the Funded Companies (FY-2011 to FY-2020 - $ Thousands)

Industry	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10-Year Total
Knowledge-Based Services*	$5,464	$13,173	$22,573	$43,000	$61,962	$86,901	$120,961	$149,274	$183,281	$321,599	**$1,008,188**
Manufacturing	1,286	2,449	3,129	7,710	9,273	16,208	21,355	24,741	27,229	16,881	**130,261**
Wholesale Trade & Transportation Services	548	1,042	1,510	3,410	6,642	10,377	13,557	15,495	17,505	19,835	**89,921**
Government & Other	420	796	1,175	2,629	4,032	6,585	8,868	10,082	11,732	17,407	**63,726**
Retail Trade	302	688	1,091	2,221	2,875	4,228	5,877	7,079	8,501	11,321	**44,183**
Visitor Industry	158	374	602	1,203	2,541	3,481	4,760	5,710	6,851	8,396	**34,076**
Construction	92	170	265	580	444	735	1,024	1,235	1,473	1,876	**7,894**
Total All Industries	**$8,270**	**$18,692**	**$30,345**	**$60,753**	**$87,769**	**$128,515**	**$176,402**	**$213,616**	**$256,572**	**$397,315**	**$1,378,249**

Note: Totals may not equal sum of all due to rounding.
Source: The Washington Economics Group, Inc. (WEG)

The Total Economic Impact of the Institute is Steadily Increasing Each Year: A Positive Outcome without State Fiscal Support for Three Consecutive Years

A comprehensive measure of the Total Economic Impact of the Institute's ongoing operations and commercialization of public research is *Gross Economic Output* representing the sum of gross revenues (receipts) of private firms plus the value of government services (valued at cost).

*Major industries under this category are Software, Information Technologies, Life Sciences, Professional Administrative Services and Arts, Entertainment & Recreation, among others.

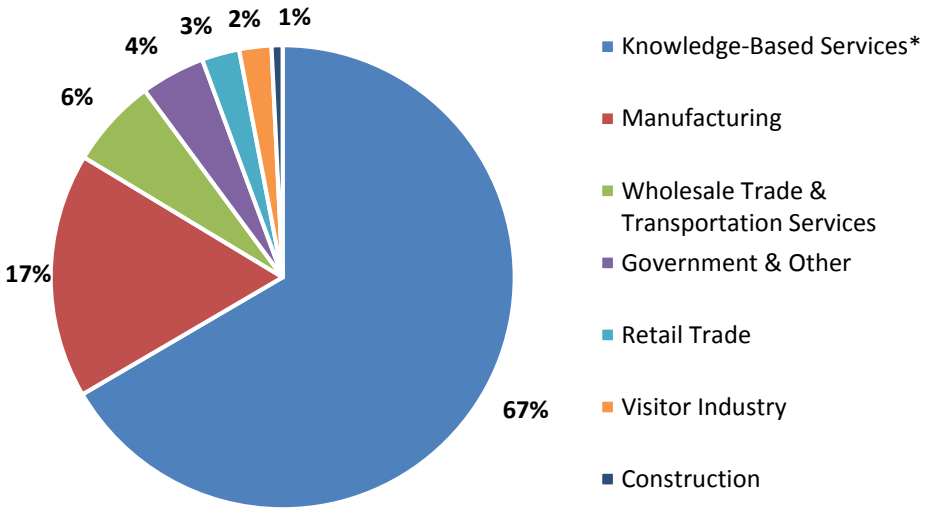
In FY-2020 alone, $744 million of Total Economic Impact was generated by the ongoing activities of the Institute. This is up significantly from $485 million in FY-2019 (a $259 million increase) without any State funding for three consecutive years, as funded companies continue to hire each year and raise private capital. These total economic impacts have increased strongly since the Institute started deploying seed capital and advisory services in FY-2011.

Table 6. Total Annual Economic Impact Arising from Institute Operations and the Funded Companies (FY-2011 to FY-2020 - $ Thousands)

Industry	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10-Year Total
Knowledge-Based Services*	$8,638	$20,457	$35,005	$67,149	$103,597	$146,255	$202,212	$250,837	$308,562	$592,901	**$1,735,613**
Manufacturing	4,596	7,965	10,094	25,671	34,174	58,712	76,159	85,899	93,360	48,320	**444,950**
Wholesale Trade & Transportation Services	876	1,678	2,442	5,489	12,829	19,275	24,762	28,085	31,545	35,443	**162,424**
Government & Other	669	1,266	1,866	4,182	7,749	12,673	17,036	19,530	22,691	29,496	**117,158**
Retail Trade	406	924	1,464	2,981	4,515	6,578	9,090	10,843	12,895	18,595	**68,291**
Visitor Industry	268	634	1,019	2,037	4,319	5,916	8,092	9,727	11,698	14,773	**58,483**
Construction	194	359	560	1,223	1,315	2,035	2,752	3,288	3,894	4,459	**20,079**
Total All Industries	**$15,647**	**$33,283**	**$52,450**	**$108,732**	**$168,498**	**$251,444**	**$340,103**	**$408,209**	**$484,645**	**$743,987**	**$2,606,998**

Note: Total may not equal sum of all due to rounding.
Source: The Washington Economics Group, Inc. (WEG)

Figure 3. 10-Year Cumulative Total Economic Impact Arising from Institute Operations ad the Funded Companies (FY-2011 to FY 2020



Source: The Washington Economics Group, Inc. (WEG)

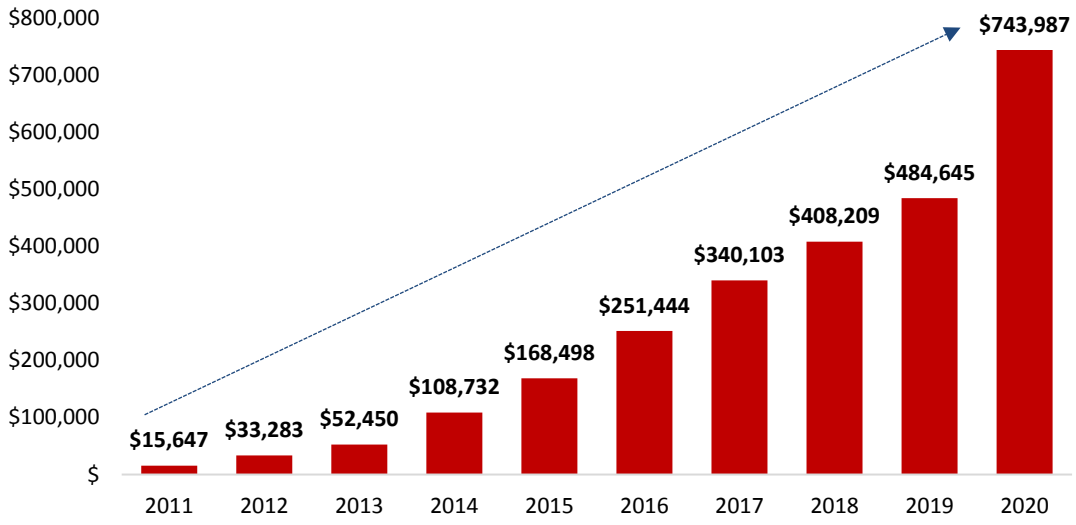
*Major industries under this category are Software, Information Technologies, Life Sciences, Professional Administrative Services and Arts, Entertainment & Recreation, among others. [5]

Table 6 and Figure 3 on the previous page show the industry distribution of the Total Economic Impact between FY-2011 and FY-2020, with the Knowledge-Based Services and the Manufacturing sectors being the top economic impact generators. **These two high-wage, high-skill sectors are emphasized by the Economic Development Strategy of the State**.

> **Over the past 10 years, the cumulative Total Economic Impact for the Institute and its funded companies totaled just over $2.6 billion, providing important contributions to the creation of an innovation and knowledge-intensive economy, and underscoring the need for seed-stage funding for emerging growth companies.**

At the outset of the Institute's seed funding activities in FY-2011, the Total Economic Impact of the Institute and the funded companies was a modest $16 million. Since then, the Total Economic Impact has grown substantially as many companies supported by the Institute have grown, continue to raise capital, launch products, generate revenue and increase their payrolls. In FY-2020 alone, the Total Economic Impact of the ongoing operations of the Institute on the Florida economy was close to $744 million as shown in Table 6 on the previous page. This is almost a **48-fold increase** in annual Total Economic Impacts since the onset of the Institute's activities in FY-2011, and up $259 million from $485 million in FY-2019. Figure 4 below displays the steady increase in Total Economic Impact since FY-2011.

Figure 4. Total Annual Economic Impact Arising from the Institute Operations and the Funded Companies Since 2011 ($ Thousands)



Source: The Washington Economics Group, Inc. (WEG)

The Institute's Funded Companies Generate Significant Contributions to Federal, State and Local Fiscal Revenues

The Institute's funded companies have generated growing and recurring Fiscal Revenues for Federal, State and Local governments as shown in Table 7 below. At the start of the Institute's seed funding activities in FY-2011, the operations and funding activities generated close to $2 million in total Fiscal Revenues. In FY-2020, the annual total Fiscal Revenue impacts increased to more than $77 million, up from $59 million in FY-2019. The cumulative 10-year Fiscal Revenue impacts total close to $297 million.

Table 7. Fiscal Contributions Arising from Institute Operations and the Funded Companies FY-2011 to FY-2020 ($ Thousands)

Taxes Paid By:	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10-Year Total
Labor	$511	$1,188	$1,903	$3,842	$7,269	$10,484	$14,646	$17,739	$21,466	$27,670	**$106,718**
Capital	$24	$53	$83	$168	$331	$439	$586	$691	$827	$971	**$4,173**
Indirect Business Taxes	$490	$1,077	$1,714	$3,509	$5,310	$7,974	$10,758	$12,852	$15,207	$21,970	**$80,861**
Households	$429	$990	$1,582	$3,193	$5,697	$8,345	$11,786	$14,335	$17,427	$23,147	**$86,931**
Corporations	$169	$364	$617	$1,206	$1,086	$1,854	$2,507	$3,125	$3,717	$3,357	**$18,002**
Total All Industries	**$1,623**	**$3,672**	**$5,899**	**$11,918**	**$19,693**	**$29,096**	**$40,283**	**$48,742**	**$58,644**	**$77,115**	**$296,685**

Note: Totals may not equal sum of all due to rounding.
Source: The Washington Economics Group, Inc. (WEG)

Appendix I:
Methodology

IMPLAN Model

The multiplier impacts calculated by the IMPLAN model are based on input-output methodology, which explicitly considers the inter-industry linkages that exist within an economy. Each industry needs labor and inputs from other industries in order to produce economic output. Whenever an industry experiences an increase in the demand for its output, many other industries within that economy *indirect*ly experience an increase in demand as well because of these inter-industry linkages. This increase in demand that results from the need for material inputs is called the *indirect effects*. In addition, an increase in production within a region also leads to an increase in household income through the hiring of workers, which in turn generates further demands for goods and services within the region. Firms also need to expand their base of physical capital to meet higher levels of demand, and this too stimulates regional economic growth. The latter effects are referred to as *induced effects*. The inter-industry linkages and the *induced* effects on consumer and capital spending lead to successive rounds of production, and this process results in an increase in output that exceeds the initial change in demand, or a *multiplier effect*. Similarly, the increase in household income will exceed the initial payroll increase encountered in the industry that experienced the original increase in demand. The total change in employment in the regional economy is a multiple of the *direct* change in employment.

The following represents the system of equations that comprise the regional economy in an extended input-output model like IMPLAN:

$$
\begin{aligned}
x_1 &= a_{11}x_1 + a_{12}x_2 + a_{13}x_3 + \cdots + a_{1k}x_k + a_{1h}x_h + a_{1i}x_i + f_1 \\
x_2 &= a_{21}x_1 + a_{22}x_2 + a_{23}x_3 + \cdots + a_{2k}x_k + a_{2h}x_h + a_{2I}x_I + f_2 \\
x_3 &= a_{31}x_1 + a_{32}x_2 + a_{33}x_3 + \cdots + a_{3k}x_k + a_{3h}x_h + a_{3i}x_i + f_3 \\
&\vdots \\
x_k &= a_{k1}x_1 + a_{k2}x_2 + a_{k3}x_3 + \cdots + a_{kk}x_k + a_{kh}x_h + a_{ki}x_i + f_k \\
x_h &= a_{h1}x_1 + a_{h2}x_2 + a_{h3}x_h + \cdots + a_{hk}x_k + a_{hh}x_h + a_{hi}x_i + f_h \\
x_i &= a_{i1}x_1 + a_{i2}x_2 + a_{i3}x_h + \cdots + a_{ik}x_k + a_{ih}x_h + a_{ii}x_i + f_i
\end{aligned}
$$

The variables x_1 to x_k represent total production of output in each industry. The coefficients a_{ij} represent the purchases from industry "i" that are needed to produce a dollar of output in industry "j". These are known as the *direct requirement* coefficients. The variable x_h refers to household income and the coefficients a_{ih} refer to the average amount of household income spent on purchases

from industry "i", or the *average propensities to consume*. The coefficients a_{hi} are similar to the inter-industry purchases (a_{ij}'s), but they represent the household income that is generated from each dollar of output produced in industry "i". Similarly the variable x_I represents regional spending on capital goods, and the coefficients a_{Ij} represents the spending on capital goods for each dollar of output produced in industry "j". The coefficients a_{jI} represent the amount purchased from industry "j" for each dollar spent on capital goods within the region. The variables f_j represent the exogenous final demand faced by each industry, respectively.

This system of equation reduces, using matrix notation, to the following solution for industry output and household income:

$$X = (I - A)^{-1} F$$

X is the vector of industry outputs plus household income, and F is a vector of exogenous final demands. The "output multipliers" (i.e., the change in industry output and household income that results from a change in final demand for the output of a particular industry) are given in the columns of the $(I\text{-}A)^{-1}$ matrix. The IMPLAN software calculates these multipliers for counties, states and other sub-state regions. These multipliers can be used to provide a sense of the economic importance of an industry or an economic activity in a given region. The multipliers impacts for gross state product, labor and capital income and the government revenue impacts are derived from the basic output multipliers given by $(I\text{-}A)^{-1}$.

The IMPLAN model uses historical relationships between public-sector revenues and regional economic output in order to estimate the public-sector revenue impact resulting from the establishment of a new, or expansion of an existing economic activity.

Appendix II:
Economic Glossary

Definitions of Economic Terms Used in the Analysis

Terms	Definitions
Employment (Jobs)	Total of full-time or part-time jobs.
Household (Labor) Income	All forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.
Gross Domestic Product (GDP)/Value Added	The increased value of a product as a result of the economic inputs (labor and capital) expended at a given stage. In the IMPLAN Model, GDP is the sum of: Employee Compensation, Proprietor Income, Other Property Type Income (Interest) and *Indirect* Business Taxes.
Economic Impact	Total value of all transactions attributed to an activity.
Direct Effects	The set of expenditures applied to the predictive model (i.e., I/O multipliers) for impact analysis. It is a series (or single) of production changes or expenditures made by producers/consumers as a result of an activity or policy. These initial changes are determined by an analyst to be a result of this activity or policy. Applying these initial changes to the multipliers in an IMPLAN model will then display how the region will respond, economically to these initial changes.
Indirect Effects	The impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to value added. The impacts are calculated by applying *Direct* Effects to the Type I Multipliers.
Induced Effects	The response by an economy to an initial change (*direct* effect) that occurs through re-spending of income received by a component of value added. IMPLAN's default multiplier recognizes that labor income (employee compensation and proprietor income components of value added) is not a leakage to the regional economy. This money is re-circulated through the household spending patterns causing further local economic activity.

Appendix III:
The Washington Economics Group, Inc. (WEG)
Project Team and Qualifications

J. Antonio Villamil
Founder and Senior Advisor

Tony Villamil is a nationally recognized economist, with over thirty-five years of successful career as a business economist, university educator and high-level policymaker for both federal and state governments. Tony was selected in 2008 as the founding Dean of the School of Business of St. Thomas University, serving successfully until December 31, 2013 at which time he resigned to return as senior advisor to the growing economic consulting practice that he founded, The Washington Economics Group, Inc. (WEG), a Florida-based firm established in 1993 upon returning to the State from his public service in Washington, D.C.

Tony is the immediate past Chairman of the Governor's Council of Economic Advisors of Florida, and during 1999-2000, he was selected by Governor Bush as his first Director for Tourism, Trade and Economic Development. Previously, he was appointed by President George H. W. Bush as U.S. Undersecretary of Commerce for Economic Affairs, receiving unanimous U.S. Senate confirmation. Presently he is active on Corporate Board of Directors, including Amerant Bank, N.A. and Amerant Bank Holding Corp., Pan American Life Insurance Group (PALIG) and Spanish Broadcasting System (SBS).

Among civic and professional leadership positions, he is currently a member of the Board of Directors of the Miami-Dade Beacon Council, the official economic development organization of the county. He is also on the Board of Directors of the Greater Miami Chamber of Commerce. He serves as Senior Fellow of the James Madison Institute (JMI) of Tallahassee, Florida.

He earned Bachelor and Master Degrees in Economics from Louisiana State University (LSU), where he also completed coursework for the Ph.D. Degree. In 1991, Florida International University (FIU) awarded him a Doctoral Degree in Economics (hc), for "distinguished contributions to the Nation in the field of economics." He frequently speaks to business, government and university audiences on the Florida economy, U.S. trade policy and economic development issues.

Tony is a resident of Coral Gables, Florida, where he lives with his family, traveling frequently throughout Florida, the U.S. and globally to conduct research and presentations for clients of The Washington Economics Group, Inc. (WEG)

Charles K. Yaros
Associate Consultant for Economics

Chuck Yaros is an Associate Consultant for Economics at The Washington Economics Group, Inc. (WEG). He serves as economic consultant in the areas of financial economics and economic impact studies. Prior to joining WEG he was a Vice President and Portfolio Strategist at Shay Financial Services in Miami where he specialized in developing, implementing and managing interest rate risk and capital optimization strategies for financial institutions.

Mr. Yaros has over 20 years of experience as a business and financial economist, having worked in a number of positions of progressive responsibility in the South Florida business community. Additionally, he has spoken and taught courses on financial risk management.

Chuck received his undergraduate degree in Economics with Honors from Trinity College and his Master's degree in Economics from Duke University, where he also completed course work for the Ph.D. degree. Chuck and his family are residents of Coral Gables, Florida.

Haydee M. Carrion
Senior Research Assistant

Haydee M. Carrion has been Executive Assistant to Dr. Villamil since the firm's founding in 1993. She has senior level expertise in multi-media presentations and in the preparation and design of complex reports and documents for clients, utilizing the latest technologies.

In 2012, WEG promoted her to Senior and Project Research Assistant to the firm, given outstanding performance in web-based research and in assistance to the firm's Principal in the preparation of audio-visual presentations for clients and in desktop publishing. Ms. Carrion is fluent in Spanish, with experience in the preparation of economics and business documents in the language.

Ms. Carrion has been with WEG for over 20 years. Ms. Carrion holds degrees in Business Administration and Office System Technologies from Miami-Dade College.

The Washington Economics Group, Inc. (WEG) has been successfully meeting client objectives since 1993 through economic consulting services for corporations, institutions and governments of the Americas. We have the expertise, high-level contacts, and business alliances to strengthen your competitive positioning in the growing marketplaces of Florida, Latin America and the Caribbean.

Our roster of satisfied clients, over the past 20 years, includes multinational corporations, financial institutions, public entities, and non-profit associations expanding their operations in the Americas.

EXCLUSIVE CONSULTING APPROACH:

Each client is unique to us. We spend considerable time and effort in understanding the operations, goals, and objectives of clients as they seek our consulting and strategic advice. We are not a mass-production consulting entity nor do we accept every project that comes to us. We engage a limited number of clients each year that require customized consulting services in our premier areas of specialization. These premier and exclusive services are headed by former U.S. Under Secretary of Commerce, Dr. J. Antonio Villamil, with over thirty-five years of experience as a business executive and as a senior public official of the U.S. and most recently of Florida.

PREMIER CONSULTING SERVICES:

Comprehensive Corporate Expansion Services. Our seamless and customized service includes site selection analysis, development of incentive strategies and community and governmental relations.

Economic Impact Studies highlight the importance of a client's activities in the generation of income, output and employment in the market area serviced by the entity. These studies are also utilized to analyze the impact of public policies on key factors that may affect a client's activities such as tax changes, zoning, environmental permits and others.

Strategic Business Development Services. These services are customized to meet client objectives, with particular emphasis in the growing marketplaces of Florida, Mexico, Central and South America. Recent consulting assignments include customized marketing strategies, country risk assessments for investment decisions and corporate spokesperson activities and speeches on behalf of the client at public or private meetings.

For a full description of WEG capabilities and services,
visit our website at www.weg.com

The Washington Economics Group, Inc.

Representative Client List 1993-2019

Multinational Corporations	
ALSTOM	Lockheed Martin
Ameritech International	Lucent Technologies
Bureau Veritas (BIVAC)	MasterCard International
Carrier	MediaOne/AT&T
Carnival Corp.	Medtronic
Esso Inter-America	Merck Latin America
FedEx Latin America	Microsoft Latin America
Genting Group	Motorola
Hyatt	Phelps Dodge
IBM	SBC Communications
Joseph E. Seagram & Sons, Inc. (Vivendi)	Telefonica Data Systems
KPMG	Visa International
Construction and Real Estate Development Firms	
Areas USA, Inc.	Inland Port Systems, LLC
Barron Collier Companies	Landstar Development
Berkowitz Development Group	LXR Luxury Resorts
Boca Developers	Miami Asset Management Company, Inc.
CDS International	Miapolis, LLC
Century Homebuilders	Odebrecht Construction, Inc.
Codina Realty	Palazzo Las Olas Group, LLC
Chateau Group	Tate Capital
Empire World Towers, LLC	The Allen Morris Company
ESJ Capital Partners	The Related Group, Inc.
Ferro Investment Group, LLC	The Rouse Company
Flagler Development	The St. Joe Company
Florida East Coast Realty Inc.	Trammel Crow Company
Florida Realtors	WCI Development Companies
Engineering, Planning and Design Firms	
AECOM (DMJM Harris)	HNTB
Atkins (PBSJ)	Kimley-Horn and Associates
CDM Smith (Wilbur Smith Associates)	Parsons Brincherhoff
Golder Associates	Redevelopment Management Associates (RMA)
Colleges and Universities	
Alabama State University	Rocky Mountain College of Art and Design
Barry University	San Ignacio College
Eckerd College	Sistema Universitario Ana G. Méndez
Embry-Riddle Aeronautical University	St. Thomas University
Florida Agricultural & Mechanical University	University of Central Florida
Florida International University	Universidad Politécnica de Puerto Rico
Full Sail University	University of Florida
Keiser University	University of Miami
Los Angeles Film School	UM's Rosenstiel School of Marine and Atmospheric Science
Miami-Dade College	University of South Florida/*ENLACE*
Palm Beach Medical Education Corporation	University of South Florida
Law Firms	
Becker & Poliakoff	Gloria Roa Bodin, Esq.
Bilzin Sumberg	Greenberg Traurig, LLP
Carlton Fields	Holland & Knight, LLP
Colson Hicks Eidson	Steel Hector & Davis
DLA Piper	Tew Cardenas, LLP
Dunbar & Dunbar	
Financial Institutions	
ABN-AMRO Bank	First Union National Bank (Wells Fargo)
Advantage Capital	Hemisphere National Bank
Allen & Company	HSBC/Marine Midland
BNP Paribas	International Bank of Miami (First United Bank)
BAC Florida	Lazard Freres & Co.
Bank Atlantic Corp.	Mercantil Bank N.A.
BankUnited, FSB	Pan American Life Insurance Group (PALIG)
Barclays Bank	PointeBank, N.A.
ESJ Capital Partners	Seitlin Insurance
Espirito Santo Bank	Sun Trust Corporation
FBA	The Equitable/AXA Advisors
FIBA	TD Bank, N.A.
Fiduciary Trust International	Union Planters Bank of Florida (Regions)

Florida-Based Companies	
All Aboard Florida	Iberia Tiles
AmericanAirlines Arena	International Speedway Corporation (ISC)
Atlantic Sapphire	Jungle Island
BMI Companies	Lake Nona
Communikatz	Mercy Hospital
CoreMessages	Miami Dolphins
Daytona International Speedway	Nopetro LLC
Dosal Tobacco	Palm Beach Premier
Drivers Club Miami	Resorts World Miami (RWM)
Farm Stores	Ron Sachs Communications
Fishkind & Associates	Rolling Loud
Florida Hospital	Sprint of Florida
Florida Marlins	eMerge Americas
Florida Power & Light	The Biltmore Hotel
Flo-Sun Sugar Corp.	The Heat Group
Greater Miami Convention & Visitors Bureau	Ultimate Software
Greater Ft. Lauderdale Alliance	Ultra Music Festival
Homestead-Miami Speedway	VICTUS

Non-Florida-Based Institutions	
Darlington Raceway	Richmond International Raceway
Georgia Retail Federation	Talladega Superspeedway
Illinois Retail Merchant Association	The Seed Foundation
Indiana Retail Council	United States Tennis Association (USTA)
Kansas Speedway	Virginia International Raceway
Martinsville Speedway	Washington Retail Association
New Jersey Motorsports Park (NJMP)	Watkins Glen International
Progress Energy	

Public Institutions and Non-Profit Organizations	
Baptist Health South Florida	Greater Tallahassee Chamber of Commerce
BayCare Health System	Independent Colleges and Universities of Florida (ICUF)
Broward County Public Schools	Indian River County Chamber of Commerce
Career Source North Central Florida	Inter-American Development Bank
Chapman Partnership	Jackson Health Systems
Citizens of Clean Energy	Jacksonville Chamber of Commerce
City of Boca Raton	Jewish Community Services
City of Coral Gables	Louisiana Committee for Economic Development
City of Doral	Miami Marine Stadium
City of Plantation	Miami Museum of Science
City of West Palm Beach	Miami-Dade County Public Schools
Economic Development Commission of Collier County	Miami-Dade Expressway Authority
Economic Development Commission of Lee County	Miami Downtown Development Authority
Economic Development Commission of Mid-Florida	Palm Beach International Agricultural Summit
Enterprise Florida, Inc.	Port of Miami
Farm Share, Inc.	SEIU Florida
Florida Bankers Association	South Florida Progress Foundation
Florida Citrus Mutual	Space Florida
Florida Chamber of Commerce	State of Florida
Florida International Bankers Association	SW Florida Regional Chamber of Commerce
Florida Institute for Commercialization of Public Research	Sylvester Comprehensive Cancer Center
Florida League of Cities	Tampa-Hillsborough Expressway Authority
Florida Nursing Homes Alliance	The Beacon Council
Florida Outdoor Advertising Association	The Florida Bar
Florida Ports Council	The Florida Chamber Foundation
Florida Retail Association	The Florida Coalition for Capital
Florida Sports Foundation	United Nations Economic Development Program
Florida Venture Forum	United Teachers of Dade
Friends of Miami Marine Stadium	Visit Florida
Greater Tampa Chamber of Commerce	Zoological Society of Florida

Latin America-Based Institutions	
Allied-Domecq, Mexico	*Mercantil Servicios Financieros*, Venezuela
Association of Peruvian Banks	Peruvian Management Institute (IPAE)
Federation of Inter-American Financial Institutions (FIBAFIN)	The Brunetta Group of Argentina
Fonalledas Enterprises, Puerto Rico	