

Summary of Findings

The participation of workers with education and training beyond the high school level significantly increases the productivity of the county's workforce, yielding significant benefits to the economy and county residents. In 2012, 642,000 Miami-Dade residents had earned post-secondary degrees. Some of those residents earned their degrees from local educational institutions, while others received their education at colleges or universities located outside Miami-Dade.

Average wage differentials between workers with college degrees and those with no more than a high school diploma reflect the increase in labor productivity associated with higher education and training. The average annual aggregate local economic benefits accruing to Miami-Dade County from a college educated workforce from 2011 to 2013 is estimated at:

- \$ 80.7 billion in total annual sales revenues of local business establishments ("output");
- \$ 49.5 billion Gross Regional Product (GRP) produced within Miami-Dade, accounting for almost 40% of total GRP;
- \$ 22.5 billion in labor compensation to persons working in Miami-Dade;
- 448,000 employment positions in the county; and
- \$1.9 billion in state revenues.

Miami-Dade's colleges and universities play a significant role in the local economy not only by improving the labor productivity of their students, but also through their operating expenditures that provides household income

that translates into consumer spending and supports local businesses.

Local colleges and universities with major operations in the county enrolled over 168,000 students in fall 2013. Other residents participated in college and executive education programs through satellite campuses or online instruction offered by institutions with a relatively small local presence.¹

Nine of the largest post-secondary educational institutions operating in Miami-Dade directly contributed approximately \$1.5 billion in labor compensation and \$420 million in purchases of goods and services related to ongoing operations. Their students spent an estimated \$820 million per year for housing, educational materials and other consumer goods. The average annual economic contribution to the county's economy from 2011 through 2013 is estimated at:

- \$ 4.6 billion in total sales revenues of local business establishments (gross "output");
- \$ 3.1 billion in Gross Regional Product (GRP), which represents the value of goods and services produced within Miami-Dade County;
- \$ 2.9 billion in labor compensation to persons working in the county; and
- 55,000 employment positions for workers. (See Tables 1 and 2 below.)
- \$ 114,000 in state revenues.

¹ The analysis of the economic contribution of local colleges and universities considers only the operations and student expenditures (above tuition and fees) of local post-secondary institutions with enrollment of more than 1,500.

The Economic Impact from a Workforce with College Degrees²

The economic and social benefits of local colleges and universities originate from the increase in labor productivity and labor income that come with post-secondary education. While local colleges and universities collectively grant thousands of degrees each year, the economic benefit from educating students in various academic and technical fields is realized when those graduates participate in Miami-Dade's labor force. The economic benefits to Miami-Dade from a well-educated workforce are also derived from workers living in the county after having earned their degrees outside the county.

Data on the alumni of local colleges and universities who live in the county and the degrees they have earned are not available from published reports.³ The economic benefits to the county from higher education, therefore, are not specifically attributed to the local institutions examined in this analysis.

² The estimates of increases in productivity from post-secondary degrees and their economic impacts is similar to the method described in a study of the Oklahoma higher education system. (*The Economic Impact of the Higher Education System of the State of Oklahoma*, Regional Economic Models, Inc. 2008.) The counterfactual method used in this analysis begins with estimating the additional labor income of local residents associated with educational attainment beyond the high school level, converting that income differential into a direct change in gross sales (output) by industry. The economic impacts of the effective change productivity are estimated using the South Florida Multi-regional REMI Model.

³ Nearly all institutions in the County publicly report the number of degrees granted each year, but few provide the number of alumni living in the county or the tri-county region.

Thirty-six percent (36%) of Miami-Dade's adult population in 2012 had completed associate's, bachelor's or graduate degrees.⁴ The typical worker with an associate's degree earned 20 percent more than workers with only high school diplomas (a wage premium of \$6,920 per year). A bachelor's degree generated an annual average wage premium of \$21,500, while the average wage premium for a master's degree was \$33,700 and approximately \$53,400 for PhDs and professional degrees. (See. Table 1.)

Wage premiums from educational attainment reflect the increase in labor productivity when labor markets are competitive. Approximately 154,000 employees working in Miami-Dade in 2012 had earned two-year associate's degrees, directly increasing productivity by \$1.1 billion above the productivity typically observed with high school graduates, while 314,000 workers with bachelor's degrees increased productivity by \$6.8 billion. An additional 175,000 employees with master's degrees, professional degrees or doctorates raised productivity by \$8.2 billion. Increasing productivity transforms the local economy by increasing the profitability of producing goods and services in the region, and, thereby, encouraging private inflows of capital investment, expansion of productive capacity, and stimulating additional consumer spending as a result of higher incomes and purchasing power of households.

The presence of college degrees in Miami-Dade's workforce during the 2011–2013 period contributed 447,700 additional employment

⁴ These estimates are from the U.S. Census Bureau, *American Community Survey: 1-year Estimates* (2012)

positions in the County (on a yearly average), \$22.5 billion in labor income and potential consumer buying power, \$49.5 billion in additional Gross Regional Product and \$80.7 billion in additional gross sales revenue. The analysis also indicates that presence of workers with college degrees led to a population 196,000 greater than in the absence of those workers with college degrees. (See Table 2.) The economic benefits of a local workforce with college degrees do not accrue exclusively to households where at least one adult member has earned a degree.

Almost half (46%) of the additional jobs resulting from college degrees in the workforce were found in occupations that do not usually require many workers to have post-secondary degrees. The analysis indicates, for example, that occupations such as sales associates and office administrative support, cleaning and maintenance of building and grounds, and food preparation and service occupations were directly affected as well.

The Economic Impact from Operations

The nine colleges and universities included in this analysis directly supported the County's economy by contributing an estimated \$1.5 billion in employee payroll per year and approximately \$420 million in purchases of goods and services per year from local vendors, and \$820 million student expenditures (excluding tuition) during the period from 2011 to 2013.⁵ The South Florida Multi-Region REMI

⁵ The estimates are based on available employment information from the educational institutions, average salaries in the County's educational services sector

Model was used to estimate indirect and induced economic effects from recurring operations and student spending.⁶

Although local colleges and universities directly provided 32,000 employment positions in the County, through indirect and induced linkages they supported a total of 55,000 positions, of which 6,200 positions were supported by student spending in Miami-Dade's economy. Approximately 61 percent of those jobs were supported in the education sector, with 15 percent in retail trade, 4 percent in government and 3 percent in construction and healthcare/social services, respectively, and the remaining 14 percent spread across the rest of the county's industry sectors.

Gross Regional Product is the generally accepted measure of economic activity within a geographic area and represents the value of goods and services produced within the county. The GRP for Miami-Dade County is estimated at \$124 billion in 2012, and the 9 colleges and universities contributed 2.5% of annual GRP (\$3.1 billion) through their operations and student spending. "Output" or gross sales of business establishments is another measure of economic activity, and the computer simulations

(\$47,700), and using information on *intermediate demand* from the economic model used to calculate the economic impacts from operations.

⁶ The South Florida Multi-region REMI Model takes into consideration the need for expanding operations to hire workers and purchase goods and services from local vendors. (The latter represent the *indirect effects*.) The additional labor income received by workers generates additional consumer spending that also supports the expansion of the local economy. (The additional consumer spending represents the *induced effects*.)

with the REMI model indicate that local colleges and universities supported \$4.6 billion in sales revenues.

The economic impact from operations is largely determined by number of employees an institution has working in Miami-Dade and the related payroll, which is also directly related to the size of enrollment. Local procurement of goods and services from suppliers is also a determining factor of the economic impact and is also directly correlated with employees and enrollment. The institutions with greater enrollment and payrolls have higher economic impacts than smaller institutions. Student enrollment range from 1,600 to 68,700, and aggregate enrollment is approaching 170,000.⁷ The economic impact separated by each institution is summarized in Table 2.

The number of (direct) employees in the nine institutions examined in this analysis range from as few as 300 to as many as 13,600. The total impact on employment (including indirect and induced jobs) from each institution range from 570 to 23,900, with half of the institutions supporting more than 2,500 jobs each. The contributions to the County’s annual GRP ranged from \$32 million to \$1.35 billion, while their contribution to the personal income of households in Miami-Dade ranged from \$24 million to \$1.0 billion. ■

Table 1. National Earnings and Unemployment Rates by Educational Attainment: 2012

Education attained	Unemp. rate, 2012 (Percent)	Median weekly earnings \$	% Diff. from HS
Doctoral degree	2.5	1,624	149%
Professional degree	2.1	1,735	166%
Master's degree	3.5	1,300	99%
Bachelor's degree	4.5	1,066	63%
Associate's degree	6.2	785	20%
Some college, no degree	7.7	727	12%
High school diploma	8.3	652	0%
Less than a high school diploma	12.4	471	-28%

Source: U.S. Bureau of Labor Statistics, Current Population Survey

⁷ Fall headcount enrollment estimates for 2013. Some institutions, however, have more part-time students than others. Approximately 41 percent of enrollment represents part-time students, and full-time equivalent enrollment (FTE) for all nine institutions combined is 140,000.

Table 2. The Economic Contribution of College Degrees in Miami-Dade County's Labor Force

Workers with College Degrees	2011	2012	2013	Annual Income Differential ¹
Adults 25 or older with:				
Associate's Degrees	144,900	153,506	162,623	\$6,916
Bachelor's Degrees	283,879	313,601	346,435	\$21,528
Graduate or Prof. Degrees	<u>165,279</u>	<u>175,282</u>	<u>185,890</u>	<u>\$46,852</u>
Total	594,058	642,389	694,948	\$24,943 ²
<i>% of all adults 25 or older</i>	<i>34%</i>	<i>36%</i>	<i>37%</i>	
Economic Contribution from College Degrees	2011	2012	2013	Average Annual Impact
Direct Effect on Output (Sales Revenues, Billion 2013 \$)	41.4	49.5	52.2	47.7
<i>% of Miami-Dade Total Output</i>	<i>19.6%</i>	<i>22.8%</i>	<i>23.4%</i>	<i>21.9%</i>
Total Contribution to:				
Employment (Thousands)	397.7	465.1	480.2	447.7
<i>% of Miami-Dade Employment</i>	<i>27.3%</i>	<i>31.5%</i>	<i>32.0%</i>	<i>30.3%</i>
Labor Compensation (Billion 2013 \$)	19.3	23.2	25.1	22.5
<i>% of Miami-Dade Labor Compensation</i>	<i>27.4%</i>	<i>22.0%</i>	<i>24.4%</i>	<i>24.6%</i>
Population (Thousands)	102.4	200.7	284.1	195.7
<i>% of Miami-Dade Population</i>	<i>4.0%</i>	<i>7.7%</i>	<i>10.7%</i>	<i>7.4%</i>
Output (Sales/Revenues, Bill. 2013 \$)	70.2	83.9	88.1	80.7
<i>% of Miami-Dade Output</i>	<i>33.3%</i>	<i>38.7%</i>	<i>39.4%</i>	<i>37.1%</i>
Miami-Dade GRP (Billion 2013 \$)	43.0	51.5	54.0	49.5
<i>% of Miami-Dade GRP</i>	<i>33.5%</i>	<i>39.1%</i>	<i>39.8%</i>	<i>37.5%</i>
State Revenues (Billion 2013 \$)	1.6	2.0	2.2	1.9
<i>% of Revenues to State from MDC</i>	<i>-14.9%</i>	<i>-18.2%</i>	<i>-19.6%</i>	<i>-17.6%</i>

Notes:

1. The income differential represents the average wage of a worker with the college degree and the average wage of a worker with a high school degree.
2. The average wage differential for all workers with an associate's degree or higher and the average wage of a worker with a high school degree.

Source: Economic Analysis and Policy Research section, Regulatory and Economic Resources Department.

Table 3. The Economic Contribution of Local Colleges and Universities from Operations and Student Spending:¹ Miami-Dade County

Economic Indicator	2011	2012	2013	Average Annual Impact
Total Employment	54,400	54,860	55,880	55,050
Private Sector Employment ²	51,760	52,210	53,190	52,390
Fed., State and Local Government	2,640	2,650	2,690	2,660
Personal Income (Billion 2013 \$)	2.078	2.339	2.553	2.323
Labor Compensation (Billion 2013 \$)	2.682	2.844	3.032	2.853
Output (Sales/Revenues, Billion 2013 \$)	4.553	4.602	4.680	4.612
Gross Regional Product (Billion 2013 \$)	3.090	3.109	3.154	3.118
GRP Components by Type of Expenditure				
Consumer Spending	1.832	1.942	2.059	1.944
Government Spending	0.276	0.278	0.283	0.279
Investment Spending	0.204	0.336	0.427	0.322
Change in Inventories	0.208	0.217	0.232	0.219
Net Exports of Goods and Services	0.570	0.336	0.153	0.353
GRP by Industry Sector (Billion 2013 \$)				
Educational Services	1.755	1.727	1.750	1.744
Real Estate, Rental and Leasing	0.327	0.326	0.320	0.324
Retail Trade	0.173	0.185	0.196	0.185
Healthcare and Social Assistance	0.200	0.196	0.196	0.197
Wholesale Trade	0.125	0.131	0.135	0.130
Profess., Scientific, and Tech. Svs.	0.133	0.133	0.132	0.133
Construction	0.081	0.112	0.131	0.108
Finance and Insurance	0.127	0.120	0.113	0.120
Accommodation and Food Svs.	0.062	0.066	0.070	0.066
Admin. and Waste Mgmt Svs.	0.071	0.069	0.068	0.069
All Other Industry Sectors	0.036	0.044	0.043	0.041
Population	14,806	27,112	37,918	26,612
Population ages 20 to 35	6,267	11,355	15,642	11,088

Notes:

1. This analysis includes only colleges and universities with significant operations in Miami-Dade County. Institutions that offer degrees online, or a limited menu of degrees at locations within the county and enrollment less than 1000 students (head count) were not included in the analysis. The estimate of economic contribution includes the direct impact and also *indirect* and *induced* economic impacts.
2. Includes persons working in Miami-Dade County and employed at private non-profit and public universities and colleges.
3. Economic impact estimates are based on publicly available enrollment and employment data from local institutions. The estimates of average wage differentials are as reported by U.S. Department of Labor, Bureau of Labor Statistics. The economic impact simulations were performed using the South Florida Multi-Regional REMI Model.

Source: Economic Analysis and Policy Research section, Regulatory and Economic Resources Department

Table 4. Average Annual Contribution to Miami-Dade Economy per Institution:¹ 2011-2013

Institutions	Output	GRP	Employment	Personal Income
	Million \$	Million \$	Jobs	Million \$
University of Miami ²	1,999.1	1,351.5	23,862	1,006.9
Miami-Dade College	950.1	642.4	11,341	478.6
FIU	752.3	508.6	8,980	378.9
Barry University	247.3	167.2	2,952	124.6
Nova Southeastern Univ.	214.2	144.8	2,556	107.9
Embry-Riddle Aero. Univ.	180.3	121.9	2,152	90.8
Keiser University	122.2	82.6	1,459	61.6
St. Thomas University	98.5	66.6	1,175	49.6
Florida Memorial University	48.0	32.4	573	24.2
Combined 9 Institutions	4,612.0	3,118.0	55,050	2,323.1

Notes:

1. Economic impacts reflect university/college operations and student spending (excluding tuition and on campus housing) and does not include capital investment expenditures (buildings and equipment).
2. Includes the UM medical school and hospital operations.

Source: Economic Analysis and Policy Research section, Regulatory and Economic Resources Department

Visit our website for additional information on Miami-Dade's economy.

<http://www.miamidade.gov/business/economic-development.asp>

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